THE IRON AGE

A Review of the Hardware, Iron, Machinery and Metal Trades.

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Washington D.C.

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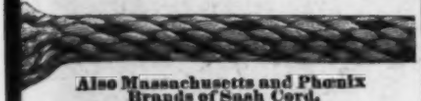

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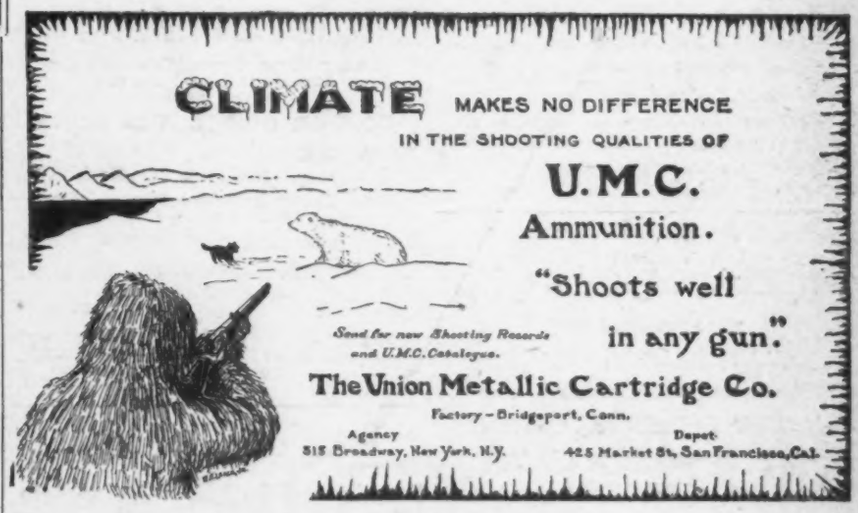
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CAHALL BOILERS See Page 104

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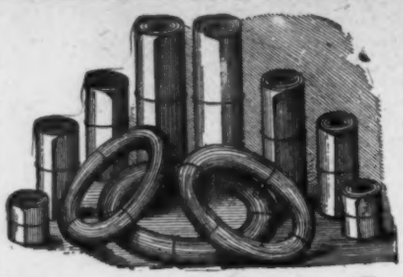

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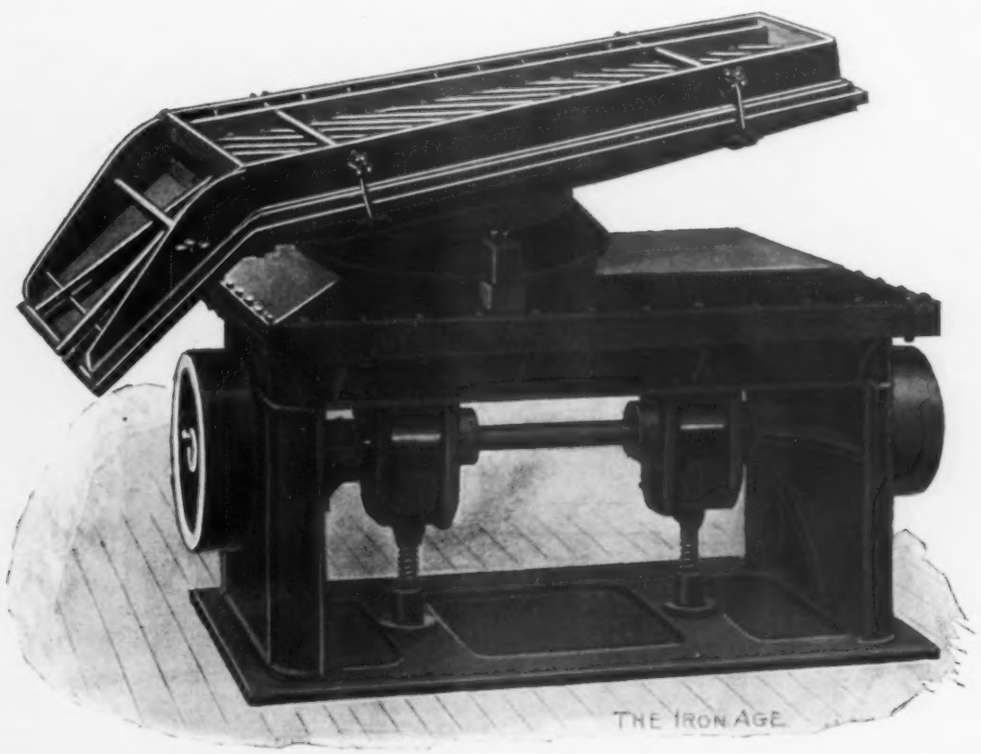
THE IRON AGE

THURSDAY, FEBRUARY 21, 1901.

The Hooper Pneumatic Concentrator and Drier.

The Hooper Pneumatic Milling Company of 515 West Thirtieth street, New York, build the two machines illustrated, for the drying and concentration of ores of all grades. The concentrator is remarkable mainly for the extreme simplicity of its construction and the efficiency with which it does its work. It will effectually separate ores into two, three, four or five groups, and will handle ores in which the variation in gravity is less than 1 pound. In ordinary work, where there is but one mineral to be recovered, the receiving bins can be so located and the ore passing over the screen so guided as to form three groups, one at the extreme right containing only the mineral, the central one being middlings, with a certain proportion of mineral, and which, if necessary, may be passed again through the machine, while the third is tailings, having no value.



THE HOOPER PNEUMATIC CONCENTRATOR AND DRIER.

Tests of the machine, working upon a mixed lead, zinc and fluorspar ore, in which the highest theoretical saving of zinc was 67 per cent., resulted as follows: Test No. 1, 62.91; Test No. 2, 65.16; Test No. 3, 61.11; the average being 63.06; or within less than 4 per cent. of the highest theoretical saving. Tests made with these same ores on three of the leading concentrating tables using water resulted in zinc concentrates which ran respectively 25, 45 and 45 per cent. On this ore the lead saving by the process here described was 14 per cent. better than the water tables. Results of an equally satisfactory character have been made in the handling of gold, silver, lead and other ores.

The essential features of the machine will be understood from the first three engravings; it consists of a base, across which extends the driving shaft, carrying two eccentrics, as indicated in the sectional elevation, Fig. 2. The stroke of the machine may be varied as demanded by the character of the material by shifting the eccentric strap, so as to produce any length of stroke from nothing to the maximum. Upon the right hand end of the shaft is mounted a split pulley so designed and weighted that it may be shifted in order to counterbalance the eccentrics, no matter in what position they may be. The eccentric rods are attached to a rubber diaphragm beneath which is a perforated screen of thin sheet metal. The diaphragm is cut to form flaps, so that upon the down stroke of the eccentrics air is admitted to the chamber. Immediately above and connected with this chamber is a second circular one also provided with a rubber diaphragm arranged in flaps. It will be apparent now that at each stroke of the eccentrics air is admitted through the lower diaphragm, discharged through the upper one, and its force expended upon the cloth underlying the concentrating screen. The upper diaphgram serves also as a stop which prevents dirt being drawn into the air chamber.

The concentrating table is mounted upon a universal joint so that any desired inclination may be given to it. It consists of a frame shaped as shown in the plan view, Fig. 3, under which is stretched the cloth, which covers a grated bed, the gratings being of the same angle as the lower riffles of the concentrating top and which fit accurately on the grate bars. The pulsations of air through the cloth cause it to vibrate between the riffles. The air is also subdivided into small columns which, passing through and in conjunction with the riffles, cause the separation.

Immediately above the cloth and resting upon it is the concentrating table, which consists of two sets of guide strips arranged at right angles with each other and at angles of 45 degrees with the side of the frame. The lower group of strips is about 3-16 inch in hight and serves to guide the metal contained in the ore to the right hand end of the lower or discharge end of the

table. The second group of strips rests upon the first, is about 2 inches in hight, and guides the tailings to the extreme left, or the tailings side of the table.

From what we have said, the principle underlying the operation of the machine will be understood. Crushed ore composed of particles having different gravities is separated by agitation, the heaviest seeking the lowest position, the next heaviest being on top, and so on. Bearing this in view it will be understood that the rapid impulses of air through the cloth thoroughly shake up the crushed ore, the heaviest particles of which are separated from the useless parts and are guided by the lower strips to their particular side of the table. At the same time the lighter particles remain on top and are guided by the upper strips to the opposite end of the table. The pitch or inclination forward facilitates the passage of the ore from the feed to the discharge end. Eleven degrees forward is usually the most allowable and 5 degrees sideways the most required in that direction. The side angle has a direct effect on the character of the concentration, some ores requiring more, others less, the exact angle being determined by observing the concentration, as the ore passes over the table. This can be determined with

of the top are mainly used. The feed is so regulated that the whole bed of the machine is nicely and evenly covered after a few minutes' running with from ½ to ¾ inch of ore above the cloth.

The Drier.

Damp and wet ores are first dried in the machine illustrated in Figs. 4 to 7, inclusive. This consists of an inclined box furnished at its lowest end with a

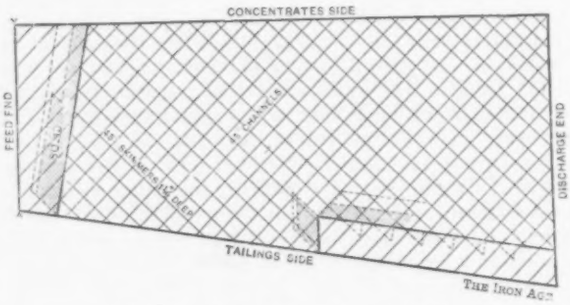


Fig. 3.- Plan of Concentrating Table.

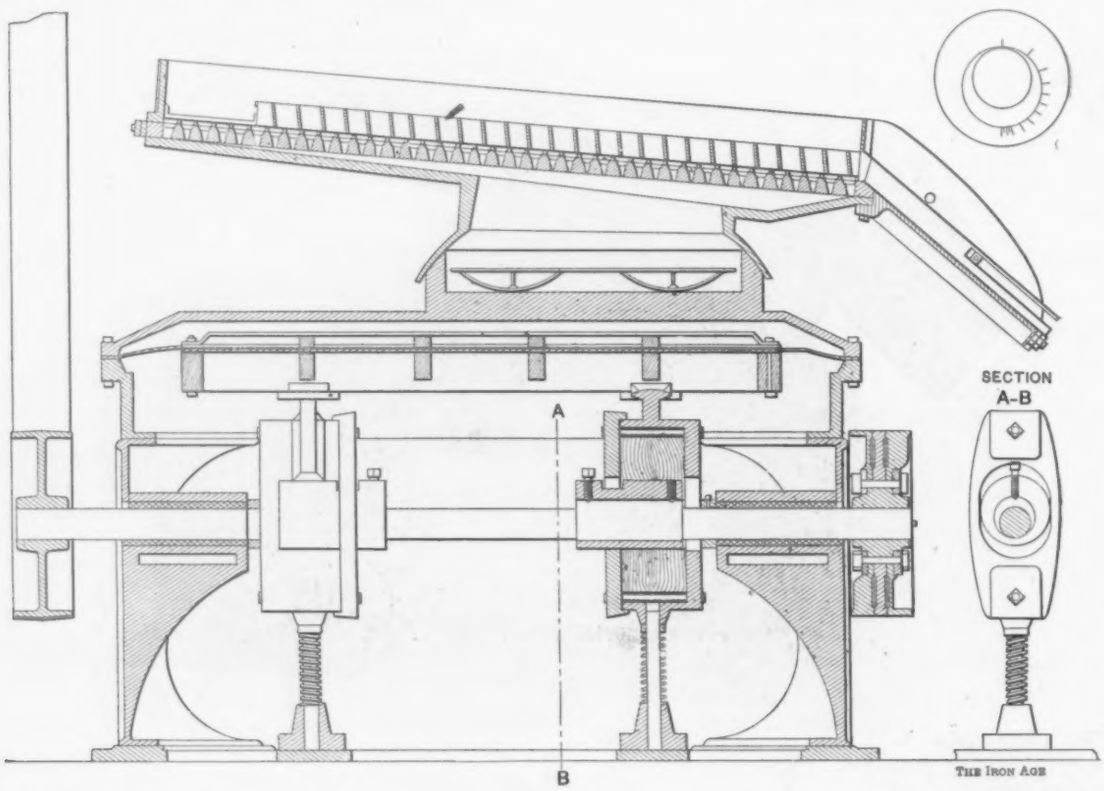


Fig. 2.—Sectional Elevation through Fig. 1.

THE HOOPER PNEUMATIC CONCENTRATOR AND DRIER.

reasonable certainty, since the concentrates ought always, with a proper adjustment of the machine, to be clean. These adjustments can readily be made while the machine is running.

Each eccentric is provided with a dial face, as shown in the upper right hand view, Fig. 2, which indicates the exact length and stroke, from nothing to 1¼ inches, at which the machine may be set. The proper stroke gives the ore a crawling motion, the particles working up and down through each other and seemingly crawling as they travel toward the discharge end. The pulsations range from 350 to 450 per minute, cone pulleys being provided for obtaining the desired variation of speed, though the machines can be set up to suit size of ore at a certain speed and require no cones.

Upon the upper end of the machine is placed an iron hopper provided with a series of gates facing the discharge end. There are three or four gates in this hopper, but the two nearest the right angled side steam manifold, the pipes of which lead up through the under side of the box. The ore is fed into the machine through a chute at the top, strikes the guide plates or steps C, by which it is guided to the lower end, passing in its passage above the steam pipes B, leading from the manifold A. At the lower end is the receiving hopper D.

The construction of the manifold, which is the most important part of the machine, will be understood from Figs. 4 and 5. It consists of a cast iron pipe formed with a central dividing wall. Screwed into the outside pipe and communicating with the inlet steam chamber is a 2-inch pipe covered with a cap at its upper end. Within this pipe and screwed into the partition wall in the manifold is a 1-inch pipe, open of course at both ends. Steam is admitted to the inlet chamber, passes up through the 2-inch pipe, and down through the 1-inch pipe to the outlet steam chamber.

In a typical arrangement employing this drying and

concentrating system the several units would be so arranged that the ore would pass as nearly as possible in a direct line through the plant. There would be first the ore platform for receiving the crude material, from which it would pass to a coarse crusher, then to a drier, if this should be necessary at this stage of the operation. From here it would go to coarse rolls, then finishing rolls, then to the screens and ore bins, from which it would be conducted to the concentrators for separating the values, and from there to the storage bins and tailings discharge outlet. While these concentrators require the ore to be dry for separating the values (consequently use no water), yet in mill construction the standard lines of power crushing and pulverizing machines as made by the leading mining machinery manufacturers are entirely suitable.

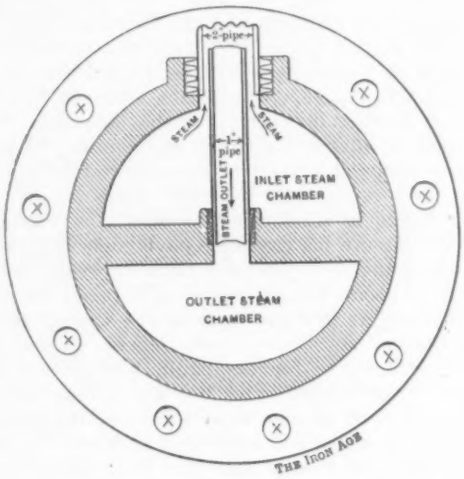


Fig. 4.—Section of Manifold in Drier.

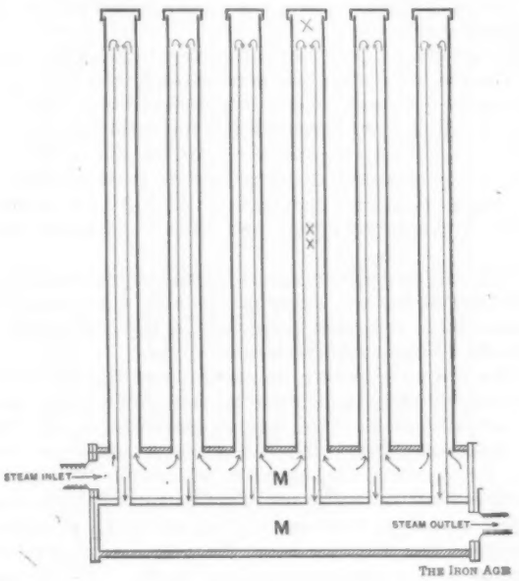


Fig. 5.—Sectional Elevation of Drier.

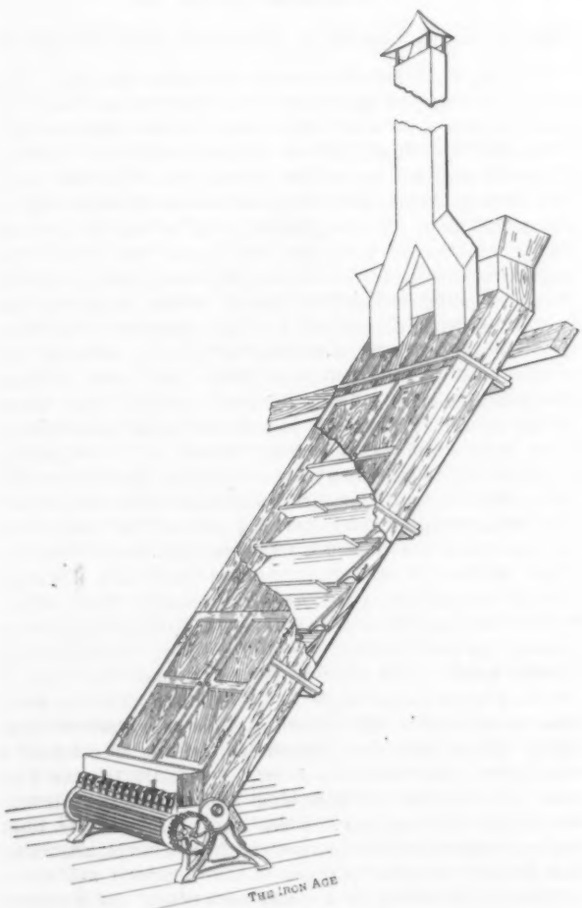


Fig. 6.—View of Drier with Case Broken Away.

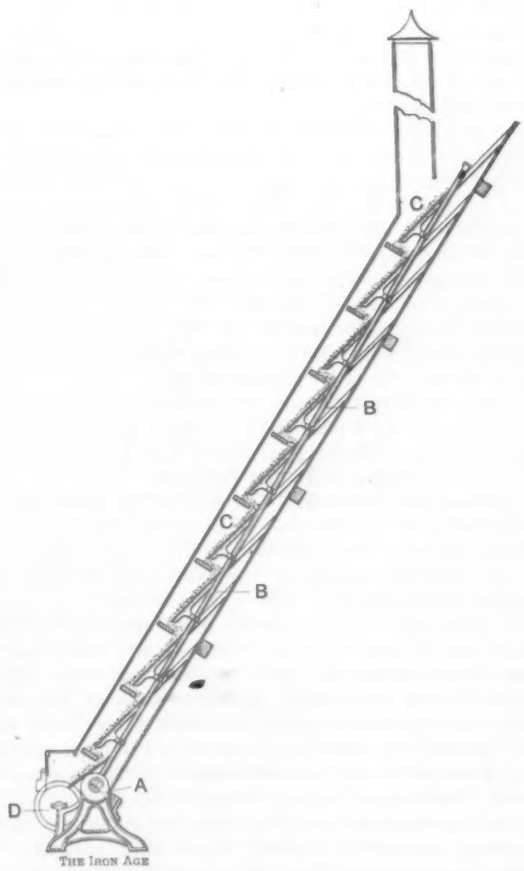


Fig. 7.—Sectional Elevation of Drier.

THE HOOPER PNEUMATIC CONCENTRATOR AND DRIER.

The Toledo (Ohio) Machine & Tool Company have been giving special attention to the requirements of shovel manufacturers, and have designed and built a number of tools for shovel makers, which very materially reduce the labor cost on this class of work. The company are now equipping four large shovel plants, which will be put in operation within the next six weeks.

The Clergue Enterprises.

The vast Clergue enterprises at Sault Ste. Marie, both metallurgical and mechanical, are progressing rapidly, and every few weeks it is possible to announce some new determination on the part of the syndicate along the line of progress laid down at the beginning of Mr. Clergue's work there.

F. H. Clergue has just returned from the East and Europe, where he has been attending to the commencement of the immigration undertaking which is called for under the terms of the immense land grants given the Algoma companies by the Canadian Government. It is expected to bring out many thousands of the better class of immigrants during the coming months, and a very marked start will be had before next fall.

While he has been engaged abroad getting machinery in motion important experiments and determinations at home have not been permitted to lag. Speaking of these Mr. Clergue said yesterday to me:

"We are now having prepared plans for two charcoal blast furnaces which will be very much larger than any yet attempted. The fragile character of the fuel has supposedly prevented the adoption of larger furnaces for charcoal work; we are not convinced that the profitable limit as to size for charcoal furnaces has been reached, but have wondered if the difficulty of obtaining proper fuel has not been the principal restraining influence with every charcoal iron works. The location of the Algoma Central Railway, through 1000 square miles of hard wood forest, will secure our charcoal furnaces an ample supply of fuel, while our arrangements for the manufacture and sale of our by-products will serve to very largely reduce the cost of our fuel. There has not yet been any public mention of this project, as we have felt it necessary to exhaust the experience of charcoal furnace practice before engaging in so radical an advance. The matter is now fully determined, however.

"We have on hand 200 carloads of material for our Bessemer plant, and the foundations are already well under way. The erection of a part of the machinery has commenced. The Riter-Conley Company have secured the contract for the erection of the steel structures, but all the walls will be of stone, conformable architecturally to our other works here. The Bessemer plant, I think you already know, will consist of two converters having a capacity for 600 tons daily, besides which there will be two tilting open hearth furnaces with a capacity of 50 tons each daily.

"The Midland furnace of the Canada Iron Furnace Company is now producing 125 tons daily of excellent pig iron from Helen ore, which has proved itself exceptionally desirable in the furnace."

In speaking of this Helen ore in *The Iron Age* some months ago I stated that it seemed to me to be of a character that would prove excellent for furnace use.

Mr. Clergue speaks of the saving of by-products; I understand that some very new patented processes for this work are to be used at the new furnaces, appliances that are expected to exceed in results anything that has so far been put into general use. The Algoma Central road is steadily pushing its way northward, and the extent of the forests of spruce and hard woods it is passing through is a surprise to the most sanguine. Mr. Clergue is not too enthusiastic when saying they have "1000 square miles of hard wood forest."

At the Sault the work of erecting buildings and installing machinery is still continuing steadily. The sulphite works are about to begin operations and in a short time there will be a very large daily production of sulphite pulp. The company have no intention of making their pulp into paper, preferring to deal in a very wholesale way. The nickel reduction works are also well along. At the Helen mine they are working away developing and quarrying ore for the coming season's shipments, and at the Gertrude pyrrhotite property they are busily engaged in similar operation.

The Michigan Lake Superior Power Company, that portion of the enterprise that is erecting a 50,000 horsepower canal on the Michigan side of the Sault rapids, are about to commence remedial works at the head of the rapids, that are designed to offset the increase of flow of Lake Superior by the opening of the company's power canals. These works will cost about $300,000, are accepted by the Government engineers, and will be started as soon as the ice is out in the spring. They will follow the general course of the Canadian Pacific bridge across the head of the rapids and will consist of a series of concrete piers connected by movable steel shutters. These works are demanded by the navigation interests of Lake Superior on the part of both the United States and Canadian Governments. With them in place there will be no lowering of the water of Lake Superior, though the entire flow, except that small portion necessary for the operation of the locks, shall be diverted through the canals. So much, indeed, is intended, and it is the expectation that the famous Sault rapids will in a few years be dry.

Mr. Clergue is attempting to create in Canada a market for the ore his company have come into possession of along the north shore of Lake Superior. To this end he has become interested in the Canada Iron Furnace Company at Midland, and in the Cramp Ontario Steel Company at Collingwood. These works, with those outlined above for the Sault, will give a home market for from 400,000 to 500,000 tons a year, and will thus take care of a very large share of the probable product of the mines for some time at least. To those that have been of the opinion that these mines would have an effect on the general ore situation in the United States, this will possibly come in the nature of a surprise.

D. E. W.

The A. Y. McDonald & Morrison Mfg. Company.

The A. Y. McDonald & Morrison Mfg. Company, Dubuque, Iowa, are graduaily removing from their old plant to the new one. The new works comprise two connected buildings, one of which is used for foundry purposes and the other constitutes the machine shop. The foundry is one story high and covers a ground space 140 x 220 feet. It is equipped with a cupola for iron and a number of furnaces for brass. The brass furnaces are built near the boilers, the waste heat from the furnaces being utilized in raising steam, requiring the use of but little direct fuel for that purpose. The foundry is equipped with a number of special molding machines built by the company from their own designs. The machine shop is 140 x 185 feet, having a clear space in the center to the roof, the center being well lighted from side windows in a long cupola. A wide gallery extends down both sides of this building, this gallery being used principally for brass finishing machines, a portion being inclosed for a drafting room. The iron working machines are placed on the ground floor. They include numerous special automatic machines designed for the company's particular requirements. They manufacture a large line of iron house and farm pumps, being among the most extensive manufacturers of such goods in the world. The new works have been laid out to enable a large output to be easily handled. The company also manufacture an important line of plumbers' supplies. Plans have been completed for the erection of a very large warehouse on ground set apart for the purpose between the machine shop and the railroad tracks adjoining the property. When the warehouse is built the raw materials will be received from a track adjoining the foundry and the process of manufacture will carry everything forward to a point convenient for shipping the finished product.

Pittsburgh-Buffalo Freight Rates.—The rates of freight on articles of iron and steel in carloads from Pittsburgh to Buffalo have been reduced to 9 cents per 100 pounds and in less than carloads 11 cents. These rates are lower than fifth and sixth classes, on which basis most of the concessions of February 1 were fixed. The old rates to Buffalo, in effect since October, 1899, in iron and steel articles were 11½ cents per 100 pounds in carloads and 14½ cents in less than carloads.

The Pressed Steel Car Company.

Under date of February 14 F. N. Hoffstat, president of the Pressed Steel Car Company, issued the following statement:

As stated to you at the stockholders' meeting held on January 23, 1901, it was impossible to have the audit of the company's books completed at that date, but in pursuance of the promise then made you, it is my pleasure to inclose herewith a condensed balance sheet, duly certified by the Audit Company of New York, showing the condition of this company at the close of the fiscal year ending December 31, 1900. In your examination of this balance sheet, it will be well to bear in mind that when your company were incorporated they had a cash working capital of but $1,500,000, and at that time were doing a business of but $1,000,000 a month.

By reason of the great demand for their product, it was deemed wise to more than double their capacity for the manufacture of pressed steel cars and pressed steel trucks, bolsters, &c., and another plant was installed during the past year for the construction of an entirely new line of work—steel under framed, wooden topped cars. The result of this installation has been very satisfactory, and the company are now in a position to bid on the erection of all kinds of freight cars.

Since the incorporation of the company, as you will see from the financial statement, the profits have aggregated $4,312,284.84. Out of these profits, $1,750,000 in preferred and $875,000 in common dividends have been declared and paid. The McKee's Rocks plant cost $1,581,580.43, and additions for the purpose of acquiring property and making improvements to original plants, amounting to $555,701.77, have been taken out of the initial working capital and earnings. From this you will see that the actual cash working capital of the company has been somewhat encroached upon, but the plants and the capacity have been more than doubled, and the monthly production increased from $1,000,000 to upward of $2,000,000. Increased volume of business necessitates the carrying of larger stocks of material, and for the full operation of the plants, so far as can be seen, it will be necessary to carry between $4,000,000 and $5,000,000 worth of material on hand at all times, and for this purpose the company have been compelled to be an extensive borrower. During the past year money has been borrowed at low rates, but it has been deemed advisable and prudent to fund this floating indebtedness. Therefore, a mortgage for $5,000,000 covering a period of ten years and bearing interest at the rate of 5 per cent. per annum, to secure notes maturing at the rate of $500,000 each year, has been executed, with the right to the company to anticipate payment of all or part, as provided for in the mortgage. These notes have been disposed of on terms advantageous to the company.

By this means the company secure extra working capital, and their interest charges are limited to not exceed $250,000 the first year, and $25,000 less every year thereafter. There was disbursed last year for interest on borrowed moneys $215,820.70, which was charged off to operating expenses, and we believe that more than the difference appearing between this amount and $250,000 can be saved in extra discounts on materials purchased. The retirement of the notes annually will strengthen the company and reduce their interest account.

Nothing has been added for appreciation of the company's real estate, which has largely increased in value during the year, and nothing has been deducted for depreciation of plants, for the reason that it has been the custom of the company to charge all expenses for the keeping up and replacing of dies, tools and machinery to operating expenses, and by reason of the practically indestructible character of the plant and properties, their newness and high efficiency, no necessity has arisen up to the present time to open a depreciation account.

With the company well equipped for economical handling of their large and growing business, their debts funded at 5 per cent., and ample working capital to continue their business, their future position seems assured.

The balance sheet of the company on December 31, according to the report of the Audit Company of New York, was as follows:

Assets.

Properties and franchises			$22,650,000.00
Cost of construction McKee's Rocks plant			1,581,580.43
Additions and improvements to plants, other than McKee's Rocks, from January 1, 1899, including purchase of real estate, amounting to $108,500			555,701.77
Dies and patterns			272,082.19
Current assets:			
Accounts receivable	$1,915,767.77		
Stock of material on hand	4,922,952.55		
Cash	214,034.55		
			7,052,754.87
Total			$32,112,119.26

Liabilities.

Capital stock, common	$12,500,000.00		
Capital stock, preferred	12,500,000.00		
			$25,000,000.00
Purchase money mortgage (4 per cent. due 1909) McKee's Rocks plant			235,000.00
Current liabilities:			
Bills payable	2,755,000.00		
Accounts payable	1,938,519.67		
Accrued salaries and wages (payable in January)	152,564.75		
Accrued dividends, being the fourth quarterly dividend on the preferred stock, declared January 23, 1901	218,750.00		
			5,064,834.42
Surplus:			
Balance January 1, 1900	$1,362,103.85		
Deduct dividends paid on common stock	750,000.00		
		612,103.85	
Add profits for year without deducting any reserve for depreciation	2,075,180.99		
Deduct dividends paid on preferred stock	875,000.00		
		1,200,180.99	
			1,812,284.84
Total			$32,112,119.26

Portable Fire Extinguishers.—Edward Atkinson, in the annual report of the Manufacturers' Mutual Fire Insurance Company of Boston, says: "We have in past years assented to the use of portable fire extinguishers in main works and factories, advising them in some cases to be put in counting rooms, engraving rooms and other similar places, but not into the main mills and works. We objected to the use of the glass bottles containing chemicals and we still object to them, but we believe they have disappeared from the market. The reason for not encouraging the portable fire extinguishers in their early stages was that any apparatus which required time for its adjustment, coming between the handy bucket of water and resort to the pump, had in some cases increased the loss by delay in place of preventing it. That type of fire extinguisher has been displaced by better ones, which can now be used in about as simple a manner as a bucket of water, by simply reversing the position of the fire extinguisher, thus mixing the chemicals and letting on the stream. Therefore, while we would not let up on our suggestion for open pails and buckets, by which more fires are put out than by all other appliances, we call attention to the effective use of portable fire extinguishers in their application to the inside of the mule carriage, to fires under carding engines and to other conditions where, even if the sprinklers have started promptly, water from other sources is needed in order to put out a fire. Small hose is coming into very general use for this purpose, and with this safeguard we may now recommend modern fire extinguishers of approved types."

A telegram from A. J. Moxham, general manager of the Dominion Iron & Steel Company of Sydney, to H. M. Whitney is quoted in the Montreal newspapers to the effect: "Sulphur, which was our doubtful point, is under absolute control to-day, and this with unwashed coal."

The Cleveland Molders' Settlement.

CLEVELAND, Ohio, February 16, 1901.—The strike of the Cleveland molders came to an end late last evening when Molders' Union 218, representing the molders of Cleveland and Lorain, ratified the articles of agreement made by the joint conference which has been in session since February 8.

After one of the most stubborn struggles in the history of labor troubles the molders have lost nearly every point involved. They return to work at $2.75 per day, the same wages they received previous to July 2, 1900, when the strike commenced. The contention over the non-union molders was settled by the agreement that the non-union men under contract are to be discharged when their contracts expire, but in taking back union molders the foundrymen decide whom they wish to take back and whom not. The strikers will give up several shop rules that have prevailed heretofore, but which have been considered obnoxious by the foundrymen. On June 3 there will be a joint conference, when there will be an adjustment of the question of wages, the agreement to continue for one year.

Neither side claims to have won a decided victory and both claim to be satisfied, although it would appear that the advantage is on the side of the employers. The strike has been a terrific handicap to the manufacturing industries of Cleveland, for although during the latter days enough non-union men were secured to take care of a large portion of the work required by local manufacturers, during the earlier days nearly all of it had to be sent to surrounding towns. On the manufacturers' side the strike was conducted by the National Founders' Association, and Secretary John A. Benton maintained his headquarters here, supervising the work of securing non-union men. Large sums of money were spent by the association in traveling expenses, special police and in bonuses to the imported men, many of them being paid as high as $4 per day in addition to the standard $2.75 per day. During the entire strike the Molders' Union paid regular strike wages of $7 per week to all union men who remained in the city and did picket duty. Out of the 683 men who struck not one returned to work and about 300 continued to draw strike pay until the end. The presidents of the two organizations estimate that the actual money expended during the strike has been at least $400,000, while the incidental expenses, loss of time and production are said to reach $600,000 more. In addition to this the strike was attended by the loss of three lives, among them a lieutenant of city detectives. A number of non-union men were injured at various times.

The articles of agreement follow:

1. That the Iron Molders' Union of North America shall declare the strike off, and cease immediately to picket the foundries of the city, the men's boarding houses and homes and co-operate with the foundrymen of Cleveland and Lorain in the operation of their foundries.

2. The contracts now in force between the foundrymen of Cleveland and Lorain and their employees shall be completed in good faith, but no more contracts shall be made for the foundrymen of Cleveland and Lorain unless in case of strike. The National Founders' Association shall discontinue at once advertising for or engaging molders for Cleveland and Lorain foundries, and give notices provided in the contracts for the discontinuing of the bonus, and the National Founders' Association agree not to support any members if they refuse to comply with the terms of this agreement. The National Founders' Association will not require over 40 days for the disposition of the men now employed. As fast as the present employees leave and any shop is vacated the Iron Molders' Union of North America agrees to have that shop immediately filled with its members, and the Cleveland and Lorain foundrymen agree to accept the same to the number required by the foundrymen in the operation of their foundries and the work started; the selection of the men to be left to the foundrymen. These men may not of necessity be former employees.

3. The Iron Molders' Union of North America to notify their men to apply for work at once and make engagements for the time they are to return to work based on one day's notice, said notice to be sent to the men required by the foundrymen as soon as the foundryman has found his work, patterns and shop in readiness. If there is a failure on the part of the Iron Molders' Union to have the molders return to work then the Cleveland foundrymen are to engage such molders as are satisfactory to themselves, and the Iron Molders' Union agrees not to support its members if they refuse to obey the orders of the president to return to work under the terms of this agreement.

4. That the minimum rate of wages shall be 27½ cents per hour for the floor and bench molders, and any man returning to his former employer shall be paid at the same rate of wages he received prior to July 1, 1900, less 10 cents per day. And overtime shall be paid at the rate of time and a half, except in case of accident or cause beyond control consuming not over 30 minutes, and double time for Sundays and holidays, to wit: July 4, Thanksgiving, Christmas and Labor Day.

5. That the further adjustment of wages shall be by means of an agreement negotiated on June 3, 1901, for one year thereafter, and shall conform to any joint resolutions and agreements adopted by this conference on that subject.

6. That each foundryman shall take back all his own apprentices, and each apprentice shall return to his former employer.

7. That the arbitrary limitation of output on the part of the molders, or arbitrary demands for increase in the output of the molder on the part of the foundryman shall not be in accord with the spirit of equity which shall govern the relationship of employer and employee, all attempts in that direction are to be viewed with disfavor.

8. That the right of the foundryman to operate molding machines in foundry shall not be questioned. In determining who shall operate them, regard should be given to the question of how their possibilities can be brought out and how the work can be most economically produced.

9. That the work shall commence promptly at the hour from which wages are calculated.

10. That other questions which have been the cause of friction and bad feeling between the employers and employees of the Cleveland and Lorain foundries are to be the subject of further investigation and correction when such abuse is found to exist, the object of this being to bring into closer relationship employer and employee, so that their mutual interests may be protected. And further, that the investigation and removal of the abuses that the foundrymen complain of are to be subject to a rigid investigation by the president and vice-president of the Iron Molders' Union, with the understanding that they will see that such abuses cease.

11. That the details above mentioned, together with any disputes relating to their adjustment are to be settled by the presidents of their respective associations or such person or persons as they may designate.

12. The foregoing agreement applies only to the following foundries now on strike, but in those cases in which only a small per cent. of the molders employed by any of the foundries was involved in the present strike, it is to be understood that the terms of this agreement shall apply only to that per cent.:

American Shipbuilding Company, City Foundry Company, Cleveland Castings Company, Fulton Foundry Company, Kilby Mfg. Company, Lorain Foundry Company, Mahler Wheel & Foundry Company, McBeth & Co., Otis Steel Company, Palmers & De Mooy Foundry Company, Patterson Foundry Company, Riverside Foundry Company, United States Cast Iron Pipe & Foundry Company, Variety Iron Works Company.

At Pittsburgh an order has been made in the case of Edwin E. Smeeth and others against the Fox Bronze & Copper Company, granting a preliminary injunction restraining the defendants from further making or selling an improvement for copper bosh plates, on which the complainants claim to have a patent.

Notes on Tuyeres.

BY JOHN M. HARTMAN.

The photograph * of tuyere shown will be quickly recognized by all bronze tuyere makers as among those returned and reported as being made of bad metal. An analysis of the metal shows it to be standard metal. The cause of the trouble lies with the founder, who does not keep his air passage open in the fuel in front of the tuyere to let the air penetrate into the crucible, or it may be in the use of too large a tuyere. When the cinder trickling down through the fuel in front of a tuyere becomes chilled by the entrance of the air at that point the blast is diverted upward and starts melting above the tuyeres, burning off the surface of the tuyere and oxidizing the metal, making it brittle. This molten material wears grooves on the surface of the nose, and when these grooves meet and join they cut a large groove in the nose, which cracks open. The water then enters the furnace, chills the hearth and lowers the grade of the iron.

An investigation of a case like this will reveal that the pricker rod for opening the space in front of the tuyere is lying in some corner, dusty and rusty. Soon as symptoms that the blast does not penetrate are discovered the pricker rod must be applied vigorously until the blast penetrates the crucible properly. This whole trouble comes from the abandonment of the pricker rod. A furnace having a pricker rod worn bright by use does not have this trouble, and a more uniform working with increased results is obtained. The air passing the nose of the tuyere is at a temperature of, say, 1200 degrees, and is highly oxidizing. Copper melts at about 1950 degrees, and the cast iron running over the nose of the tuyere is at a temperature of about 3600 degrees. These conditions all favor the burning of the surface of the nose of the tuyere. When a rill of iron flows over the nose the tuyere gets hot in spite of the water circulating in it, and as the surface of the metal approaches a red heat the air begins to burn or oxidize the copper. The metal of the nose does not melt, but burns, leaving it brittle, spongy and easy to crack. The temperature of the crucible and the cinder on No. 1 iron is about 3600 degrees. At a temperature of about 50 degrees the cinder chills close to the nose of the tuyere, creating an obstruction to the entrance of the air, thus dispersing it sideways and upward and preventing penetration. Cold air requires almost constant use of the pricker rod. When pipe stoves are used, with the attendant air temperature of 900 degrees of air, the cinder does not chill so quickly. Still, the pricker rod must be used. With brick stoves and an air temperature of 1200 degrees the cinder chills less quickly than with 900 degrees, but the pricker rod cannot be abandoned.

With the larger volume of air now used, an obstruction once formed in front of a tuyere soon becomes worse and the destruction of the tuyere from the molten material flowing down over it is quickly accomplished. The result is a loss to the furnace proprietor and the tuyere maker, who must come in for his share of blame. More watchfulness on the part of the keeper and the use of the pricker rod by the helper will give the superintendent more peace of mind and a larger profit from his furnace. Means should be provided at every tuyere to show that all the tuyeres are working evenly. When tuyeres with excessively large nozzles are used the air has no penetrating power and is reflected upward, and the molten material flowing down over the nose of the tuyere burns it in the manner already described. This is corrected by using a smaller nozzle, but the pricker rod must not be abandoned.

A clinker forming in front of a tuyere has a crushing strength of 311 pounds per square inch, while pressure of the entering air is 12 pounds. What chance has the air to penetrate the clinker and get rid of the melting of the rills of iron from the melting going on right over the tuyeres. The application of the pricker rod is the only thing to stop it. What is more effective and saves loss of the blast is a small cartridge put up against the clinker or driven into it and exploded. These can be had cheaply, and do their work, as they open a fissure through the clinker, allowing the blast to penetrate to the fuel back of the clinker and melt it away.

X

IMPERFECT BRONZE TUYERE.

How many furnacemen know which tuyere is taking the most blast, robbing the other and causing scaffolds with explosions ? The simple fact of losing a number of tuyeres in succession at one opening shows that the furnace is working lop sided. When they are lost all around the proof is furnished that there is not sufficient penetration, which is due to a chilled center or excessively large nozzles. The wider the crucible the more care is required to get penetration to the center and save the tuyeres. Has the art of running a furnace increased with the size of the furnace used to-day ?

A velocity of entering air of 20,000 feet per minute is required for anthracite, for coke it is 15,000 feet, and for charcoal 10,000 feet per minute. This estimate has been justified by 25 years' practice, and no cause has been found to change it if good work is required. Tuyeres have run 33 months, to be then taken out because they were worn too thin for safety. Twelve months is a good run for a tuyere, but plenty are burned in half an hour. Zinc or lead in the ores alloys with the metal on the nose, melts and runs off. With the rapid driving of furnaces as at present the greatest care and watchfulness is imperative.

That the metal was burned off the top of the nose of the tuyere here described is shown by measurements of the nose at the burned part at the top and at the bottom.

At the part of the top burnt the thickness was 3-32 inch. The good metal at the top had a thickness of 3-16 inch, while the good metal at the bottom was ⅜ inch thick.

* The mark X on the half-tone is due to an imperfection in the photograph.

A Duluth Water Power Undertaking.

Papers in condemnation proceedings are being filed at Duluth by the Highland Canal & Power Company, who propose to construct in St. Louis and Lake counties, Minn., a water power canal to have a very large capacity, and to be able to deliver at the machines of consumers 100,000 24-hour electrical horse-power.

The discovery of the fact that a canal practically on one level might be constructed across St. Louis County from a point within the city limits of Duluth to within a few miles of the Canadian border, 100 miles away, was a notable one, and was made by F. A. Cokefair, an engineer from New York. He has associated himself with Eastern capital that is claimed to be able to carry out the project. To judge from the railways that cross the same region or to follow the surveys heretofore made, one can scarcely credit the statement that a waterway, practically without locks, can be secured for this distance through such a region, but accurate surveys show there is not the slightest question of the fact.

The water shed covers an area of more than 2500 square miles, taking but a proportion of the annual storm flow, and impounding it in reservoirs, while the nature of the ground and the extent of swamps, lakes and streams to be crossed makes particularly easy the 100,000 horse-power that can be uniformly maintained through a far longer period of drought than has ever been known in the region. The open canal brings water to a point within the city limits of Duluth, and some 776 feet above the level of Lake Superior. The drop will be through a series of steel pipes to the power house located in the center of the manufacturing district along the Duluth-Superior harbor.

There is an immediate demand at Duluth-Superior for not less than 30,000 horse-power, and with an assured power delivered at the consumer's door at the price proposed to be charged by the Highland Company a material increase of this demand is expected. It is stated that nowhere else in this country can power be generated and sold so cheaply, on account of favorable conditions for ease and cheapness of construction, maintenance and operation, with an abundant and reliable supply of water, an available fall of 776 feet and short distance transmission. It is expected by the projectors of this company that they will sell power on a graduated scale much like that of the Cataract Construction Company, and at about two-thirds the price charged by that company. The estimates show that the cost of the entire system of canal and installation of plant will be not greatly in excess of the cost of the tail race of the Cataract Company at Niagara Falls.

There is along the line of the proposed canal a very large quantity—many hundred millions of feet—of pine timber, much of which cannot be gotten to market except by some such canal or by railways to be constructed. None of this timber can now be brought to the saw mills at Duluth. There are also along the line millions of cords of pulp wood, now very valuable, and at present under the same restrictions as to transportation. There are also many other kinds of valuable products. All of these can be floated down the canal to the head of the hill above the city of Duluth. The company propose to erect a conveyor system running from the terminals to the harbor of Duluth-Superior, and to deliver these materials there at low cost. This it is expected will be an important and valuable feature of the system. In the conveyor system many new and interesting engineering problems have been worked out. Plans, surveys and estimates of cost have been completed for the entire system, for both the waterways and terminals, and it is expected that construction will begin early the coming season.

The plans and estimates of cost, &c., have been indorsed by J. T. Fanning, consulting engineer, of Minneapolis, and other well known men in the profession.

Freight Rates on Cast Iron Pipe.—The request of the makers of cast iron pipe, notably the United States Cast Iron Pipe & Foundry Company, for a reduction in freight rates on cast iron pipe, has been refused. The railroad freight agents met in Columbus last week and took the matter up, but decided to continue in force the old rates. The rate from Scottdale, which has the only cast iron pipe plant in the Pittsburgh district, to Chicago is $3.10.

The American Iron & Steel Mfg. Company.—The annual meeting of the shareholders of the American Iron & Steel Mfg. Company was held at the general office of the company, in Lebanon, recently, and the following directors were chosen for the ensuing year: Arthur Brock, Lebanon; Horace Brock, Lebanon; Thomas Evans, Lebanon; Charles M. Hallman, Lebanon; H. H. Light, Lebanon; James Ford, Lebanon; H. M. M. Richards, Lebanon; J. H. Sternbergh, Reading; Herbert M. Sternbergh, Reading; Charles W. Wilhelm, Reading; William H. Wallace, New York. Immediately after the adjournment of the shareholders' meeting the Board of Directors met and chose the following officers to serve for the ensuing year: J. H. Sternbergh, president and general manager; Arthur Brock, vice-president; H. M. M. Richards, treasurer; Charles M. Hallman, secretary. Many changes of subordinate officers were announced by the new president. The election of the above officers is a complete change in the executive management of the company. Mr. Sternbergh has been a pioneer in the business. He began the manufacture of nuts in Reading 35 years ago, when there were but three or four other establishments in the whole country making similar goods. In the years following he enlarged his plant frequently and added the manufacture of merchant bar iron and bolts of every sort, rivets, and other goods, increasing his facilities and extending his trade to all parts of the country and to foreign countries, and has enjoyed an enviable reputation for the quality and finish of his manufactured products. In 1881 the Pennsylvania Bolt & Nut Company of Lebanon were organized, and about ten years later the National Bolt, Nut & Rivet Works of Reading were organized, both of which sprang directly or indirectly from Mr. Sternbergh's establishment, employing the same machinery and making the same class of goods. These three concerns, located near each other, became active competitors for the same class of trade, and on September 1, 1899, they consolidated their plants together with two of the Lebanon rolling mills, forming the American Iron & Steel Mfg. Company. This company have a paid up capital of about $5,000,000 and employ at the different works about 4000 men, and manufacture more than 100,000 tons of merchant bar iron and steel annually, most of which is worked up by the company into bolts, nuts, rivets, spikes, forgings and a great variety of other similar articles, which are shipped to thousands of customers throughout this country and more or less exported to foreign countries. It is in accordance with the natural fitness of things that Mr. Sternbergh, who is recognized as the father of this industry, the inventor and builder of much of the machinery used, and thoroughly familiar with the mechanical and every other feature of the business, should again assume the oversight and management of this large and important industry. The general offices of the company will be maintained at Lebanon, where the future additions and improvements will be mainly concentrated.

The American Foundry Company.—The American Foundry Company is the name of a new company that have been organized in Chicago to manufacture iron castings and do general foundry jobbing. The members of the new organization are Broro Frisk, lately foreman of the Atlas Foundry Company, and D. Munroe and Charles Kissel, pattern makers, recently in the employ of the M. C. Bullock Mfg. Company, just absorbed by the Sullivan Machinery Company. The new company will occupy part of the Kurtz Foundry, Claremont and Austin avenues, for the present, and expect to build about May. Various new tools and a 5-ton crane have already been installed, and the firm start with advance orders for large castings.

The National Joint Conciliation Committee.

Chairman A. C. Bartlett of Chicago, on the 16th inst., announced the personnel of the national joint Committee on Conciliation and Arbitration which was authorized by the conference recently held in Chicago under the auspices of the National Civic Federation for the purpose of considering plans for the abolition of labor strikes and lockouts.

The first meeting of the committee will be held in Chicago some time next month. A subcommittee, consisting of Herman Justi, John Mitchell and E. D. Kenna, will submit a report defining the scope and character of work to be undertaken and a detailed plan for putting the project for industrial peace into operation.

At the meeting the committee will arrange for the organization of local boards for conciliation and arbitration in every large industrial center in the United States. Blanks are being mailed from the headquarters of the National Civic Federation to large employers and labor bodies in all parts of the country, asking for copies of trade agreements now in operation and descriptions of any efforts they are making to improve the social status of the working class, and also asking for recommendations as to how this committee can be of service in bettering the relations between employers and employees.

The national joint committee is composed of some of the largest employers of labor in the country, as well as leading representatives of trades unions. It is as follows:

Adolphus C. Bartlett, vice-president Hibbard, Spencer, Bartlett & Co., Chicago.
S. R. Callaway, president New York Central & Hudson River Railroad Company, New York.
Chauncey H. Castle, president Stove Founders' National Defense Association, Quincy, Ill.
W. J. Chalmers, National Metal Trades Association and member of the firm of Fraser & Chalmers, Chicago.
E. E. Clark, grand chief conductor Order of Railway Conductors, Cedar Rapids, Iowa.
R. M. Easley, secretary National Civic Federation, Chicago.
Martin Fox, president Iron Molders' Union of America, Cincinnati.
G. Watson French, vice-president Republic Iron & Steel Company, Chicago.
Cardinal Gibbons, Baltimore.
Samuel Gompers, president American Federation of Labor, Washington.
D. R. Hanna, chairman Dock Managers' Association, Cleveland.
Henry W. Hoyt, president National Founders' Association; vice-president Gates Iron Works, Chicago.
E. T. Jeffery, president Denver & Rio Grande Railway Company, Denver.
Herman Justi, commissioner Illinois Coal Operators' Association, Chicago.
E. D. Kenna, vice-president Atchison, Topeka & Santa Fé Railway Company, Chicago.
Daniel J. Keefe, president International Longshoremen's Association, Chicago.
Seth Low, president Columbia University, New York.
James M. Lynch, president International Typographical Union, Indianapolis.
John Mitchell, president United Mine Workers of America, Indianapolis.
James O'Connell, president International Association of Machinists, Washington, D. C.
Rt. Rev. Henry C. Potter, Protestant Episcopal Bishop, New York.
Frank P. Sargent, grand master Brotherhood of Locomotive Firemen, Peoria.
William H. Sayward, secretary National Association of Builders, Boston.
T. J. Shaffer, president Amalgamated Association of Iron, Steel and Tin Workers, Pittsburgh.
H. J. Steinbiss, secretary and treasurer National Building Trades Council, St. Louis.
Henry White, general secretary United Garment Workers of America, New York.
James H. Bowman, president International Printing Pressmen and Assistants' Union, Chicago.
D. A. Hayes, president Glass Bottle Blowers' Association of the United States and Canada, Philadelphia.

The following letter is inclosed in the question blanks being sent to the large employers of labor and the leading representatives of organizations:

"If any argument were required to show the vital importance of such a movement to both capital and labor it ought only to be necessary to quote from foreign trade journals, which are frankly asserting that England has lost her commercial supremacy largely through labor troubles during the last ten years, and predicting that the United States are beginning to go through the same experience. That this prediction will become true unless leaders of capital, labor and public thought join in some practical effort to prevent such disturbances is generally conceded by careful observers of events."

Secretary Easley has received acceptances from every member of the committee and each has expressed himself as being deeply interested in the important question referred to.

Central Pennsylvania News.

HARRISBURG, PA., February 18, 1901.—The iron and steel manufacturers of this part of Pennsylvania are wondering with those of other sections of the country what effect the colossal Morgan combination will have upon their business. Few undertake to even venture an opinion at this stage of the developments, but all privately agree that such combinations are likely to prove exceedingly dangerous to the trade generally. They fear that all competition will be crushed and that the large combinations will control the markets of the world so that the smaller concerns will be practically swamped. So far as the Central Pennsylvania companies are concerned they say that it is too early to estimate the effect upon them of the doubling up of the larger plants. They accept the view that prices will be maintained, but they fear the pressure which may be brought to bear upon them when the business slackens and the markets are less active. At the present time there seems to be plenty of business for all the plants in this territory, and with few exceptions they are running full time with abundant orders. This applies to the Pennsylvania Steel Company, the Central Iron & Steel Company, who are doing an enormous plate business; the Harrisburg Foundry & Machine Works, the Harrisburg Pipe & Pipe Bending Company and other plants. The outlook is very satisfactory, and with the doubts raised by the giant combination in New York cleared away the year would be full of promise for all the manufacturers of this district. S.

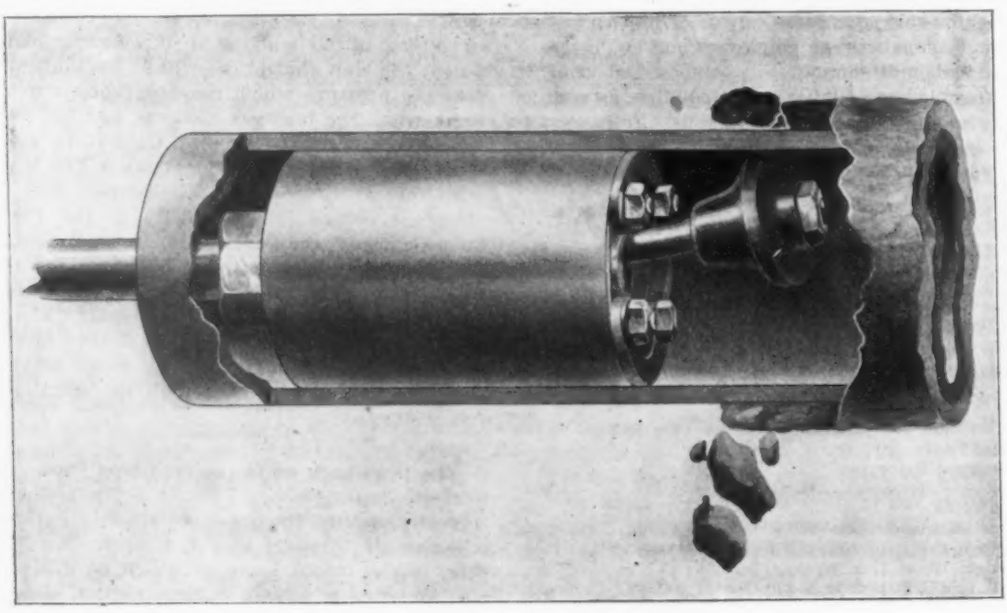
The Drawback on Galvanized Iron Pipe.—In a letter to the Collector at New York, O. L. Spaulding, assistant secretary, says: "On the exportation of galvanized iron pipe manufactured by Wm. P. Cook & Co. of New York City, in the manufacture of which no other than iron pipe imported in a plain or ungalvanized state has been used, a drawback will be allowed equal in amount to the duties paid on the imported material so used, less the legal deduction of 1 per cent. The preliminary entry must show the net weight of the exported piping of each dimension, which must be described, severally, by size number, inside and outside diameter, thickness of wall, quantity and average length. The drawback entry must show the net weight of the exported piping of the several dimensions, and of the plain imported iron piping which entered into the manufacture of the same respectively. In liquidation, the quantities of imported piping of the various dimensions which may be taken as bases for allowance of drawback may be the quantities declared in the drawback entry after official verification of exported sizes and weights."

Central Station Heating.—In the issue of *The Iron Age* of February 14, 1901, page 17, we reprinted the greater part of a paper, read before the American Society of Heating and Ventilating Engineers, entitled "Some Notes on Central Station Heating." By an accident, the name of the well-known author, W. H. Bryan, consulting engineer, of St. Louis, was omitted.

The first quarterly report of the Pittsburgh Coal Company's Employees' Association last week will show that 216 employees at the company mines own 1414 shares of stock, that 140 employees at the general offices own 1231 shares, and that 50 employees in outside districts own 216 shares. A total of 3370 shares is owned. The capital is $50,000. The association paid $87.11 per share, and in two months the stock earned 72 cents a share.

The Dean Tube Cleaner.

The Power Specialty Company of Buffalo, N. Y., are the sole selling agents in the Western part of the United States for the tube cleaner here illustrated. The device is intended to remove the scale from either a return tubular or water tube boiler. The application of the cleaner to the former type of boiler and the design of its moving parts are shown in the engravings. The cleaner comprises a shell or hollow body, A, closed at one end by a cap, B, to which a hose pipe, C, is fitted. The opposite end is formed with a chambered head. A piston, E, reciprocates within the chamber F and has a transverse opening, through which it passes a vibrating arm, G, pivoted to the head at H and bearing a scale loosener, I, at its outer end. The opening in the piston flares toward its end in order to afford clearance for the vibrating arm when the cleaner is in operation. The arm has a sliding movement in its rocking bearing. The piston and rocking bearing are made of different metals of such nature as to obviate the employment of a lubricant. Ports K lead into the ends of the chamber F and open into the shell through the rear end of the head D.



THE DEAN TUBE CLEANER.

These ports are controlled by the slide valve L, which is operated by the rear end of the arm G. This arm has a limited play relative to the slide valve, whereby a rebound of the scale loosener will uncover the inner end of a port by moving the piston without shifting the slide valve, thereby providing for admission behind the piston before the valve is shifted. The parts are so proportioned that the opposite port is closed by the piston an instant prior to the shifting of the valve. Thus it will be seen that the ports are alternately closed and opened at their opposite ends by the valve and piston.

The cleaner, having been placed in the front end of the tube and steam or compressed air turned on, is turned one way and the other in order that the vibrator may strike every part of the tube. The strokes, at 50 pounds pressure, vary from 800 to 1000 a minute. The accumulation of soot and dirt in the tube is blown out by the exhaust. What is more important, all the scale upon the outside of the tube is dislodged by the strokes of the vibrator. From 3 to 5 minutes are required for each tube. By providing the vibrator with a head, which is made sharp to cut and shatter the scale, yet so guarded that when the scale is removed and the tube clean the sharp edge cannot reach the tube itself, the device works with equal success in water tube boilers.

The American Steel & Wire Company in January rolled 84,000 tons of wire rods.

Finishing Temperatures for Steel Rails.*

BY ROBERT W. HUNT, CHICAGO, ILL.

There are certain physical characteristics of steel resulting from its treatment while being formed into useful products which have been, and are, well known to its manipulators; but under the stress of business competition and other controlling influences all knowledge is not always given either full sway or even full acknowledgment. It has been so in the case of steel rails. It is a universally acknowledged fact that steel rails of heavy sections made during the last ten years have not given as good service as the rails of lighter sections produced before that time. While certain fundamental principles of steel making have been acknowledged, their application to steel rail manufacture has been, if not actually denied, completely ignored.

In 1887 William Metcalf, in his paper presented to the American Society of Civil Engineers, on "Steel; its Properties; its Use in Structures and Heavy Guns" (Proceedings Am. Soc. C. E., Vol. XVI, p. 284), gave an exhaustive and lucid treatise on the effects of heat and work on steel. This paper has become classical. Sitting at the feet of such a master, I have endeavored to emphasize the prime importance of the principles so clearly stated by him, as relating to steel rail making.

In a paper on "Specifications for Steel Rails," read at the Buffalo meeting of the American Institute of Mining Engineers in October, 1888 (Proceedings A. I. of M. E., Vol. XVII, p. 226), I sought to prove the importance in relation to the wear of rails of their section and the physical treatment of the steel during their manufacture. Later, in February, 1889, in a paper on "Proposed Rail Sections," submitted to the same society (Proceedings A. I. of M. E., Vol. XVII, p. 778), I again urged the same points. The tremendous increase in tonnage of railway traffic and weight of rolling stock employed in it having made the use of heavier sectioned rails imperative and practically universal, and a wonderful development of the iron ores in the Northwest having taken place, I was led to present another paper on rail specifications to the institute, entitled, "Specifications for Steel Rails of Heavy Sections Manufactured West of the Alleghanies" (Proceedings A. I. of M. E., Vol. XXV, October, 1895, p. 683). In that paper I again urged the paramount importance of work applied at reduced temperatures. It was my privilege to bring

* Read before the Richmond meeting of the American Institute o Mining Engineers.

this point to the direct personal attention of many railway engineers at the first annual convention of the American Railway Engineering and Maintenance of Way Association, on March 15, 1900 (See Proceedings, p. 121). I urged this in the discussions of the American Society of Civil Engineers during the deliberations which resulted in the adoption of the report of its Committee on Standard Rail Sections (Proceedings A. S. of C. E., Vol. XXVIII), and again, when I had the honor of presenting to the same society at its London meeting my paper on "The Manufacture of Rails in America" (Proceedings, Vol. XXVI, p. 752).

While venturing to particularize some of the recorded instances of my elaborations of the importance of the physical treatment of steel during its manufacture into rails, I do not wish to, for one instant, imply that others have not also maintained the same position. D. J. Whittemore, F. C. Delano, Thos. H. Johnson, Wm. Sweet, P. H. Dudley and others have written and spoken to the same effect; but as it happened that I was the only one who had been an actual steel rail maker, it came to pass that my statements were given more attention than they probably deserved, and that must be my excuse for referring to them. But mere words never did accomplish anything, and no matter how much or how often any of us wrote and spoke, so long as the rail makers did not act unsatisfactory rails continued to be furnished to the railroads.

As the rush of the modern mill and its tremendous productions seemed to preclude the possibility of obtaining rails rolled at lower heats, I advocated trying to obtain from chemical composition that which could not be secured from physical treatment, and so urged harder steel in proportion to the increase of section. Good results have come from such mixtures, but I have always insisted, and do now, that the chemical composition is secondary to the physical treatment of the metal. There have been instances in the experience of many railway engineers where they have obtained excellent service from steel rails, which were made in the earlier days, whose chemical analyses revealed the fact that they had neither good nor even consistent chemical character. They were high in carbon and low in carbon; high in manganese and low in that element; high in phosphorus, and higher in phosphorus, and so on. But they all yielded good service.

Early in 1895 the Pioneer Rail Renewing Company were organized to develop and operate the process of renewing steel rails which had been invented and patented by E. W. McKenna. He had been during his whole business life an operating railroad man, and as such had been impressed by both the tremendous expense attached to the rail part of maintenance of way and the comparatively short service obtained from the majority of rails, not always because they broke or wore out, but because they became so rough that they were unfit for main track use, or because their ends battered and had to be cut off. This latter procedure was expensive, and when the rails were put back into service they did not give a good track, both on account of an increased number of joints and because of mismating of the rails. So long as the roads had branch lines or sidings laid with iron rails the rails from the main track could be used to replace the iron ones, for which there was a constant market; but he foresaw that as the sections on the main line increased in weight, and the subsidiary lines were laid with steel heavy enough and good enough for their requirements, the railways companies would be left without a market for the heavy sectioned worn out rails.

These considerations led to his scheme for renewing rails and restoring them to their original service in main line tracks. The Pioneer Company rented the Old North Chicago Rail Mills of the Illinois Steel Company—the mill, by the way, in which the first steel rails rolled in America were made. Here rails were renewed on experimental orders from several different roads. It required time to demonstrate by service the success or failure of the rails. From the first I had maintained that the renewed rail would wear better than a new one—basing my belief upon its receiving more work, and that at a low temperature. The rails gave such good results that more capital was raised, and the McKenna Steel Working Company were organized, who built a new rolling mill at Joliet, Ill. This was followed by another at Kansas City, Mo., and, I believe, one is soon to be erected in the vicinity of New York.

Thousands of tons of rails have been renewed and are giving satisfactory service, and I believe that the success of the McKenna renewed rail has had more to do with the commercial recognition of the heat and work principle than all of our talks and writings. It was an actual demonstration on a scale which could not be ignored.

The officials of great railway companies were restive in their dealings with the rail makers. Commercial conditions became such that there could not be any question of the rail business yielding profits; therefore, buyers felt free to demand better goods. Several of the rail companies recognized the inevitable and prepared plans for the alteration of their rail mills, notably the Illinois Steel Company and the Carnegie Steel Company. The latter have carried their plans into execution, and are to-day rolling rails in their modified mill. All is working well, and I have no doubt as to the better quality of their rails so manufactured. I believe the Cambria Steel Company have taken steps to equip themselves on the same lines, and no doubt others will soon do so.

The Pennsylvania Railroad Company made it a part of their rail contracts for this year that the rails must be finished at a low heat. This naturally brought up the question of what constituted such a heat, and how it should be determined. Representing as I do the Pennsylvania lines west of Pittsburgh in their rail inspection, I was consulted, and I recommended the use of lunette pyrometers. This led to a series of heat observations with such an instrument, the results of which I shall give. It may be that the Ducretet & Lejeune pyrometer does not give the exact heat degrees, but from my observations I feel certain it does yield consistent results. If it

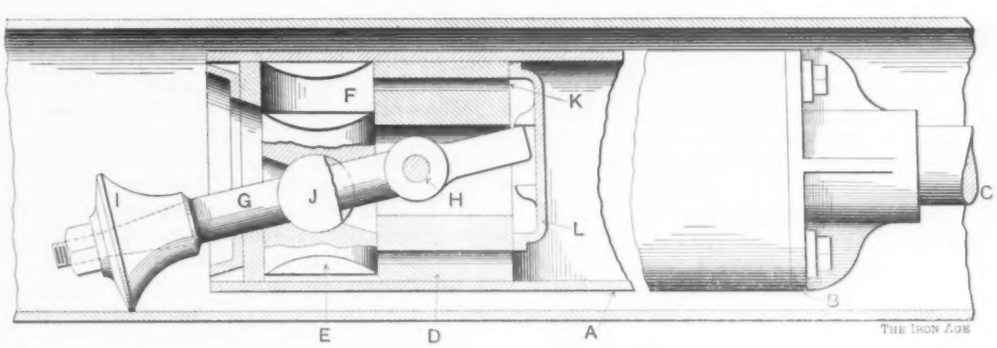


Fig. 2.—Section Showing Working Parts.

THE DEAN TUBE CLEANER.

does that, it will be all that is required. Thomas Morrison, general superintendent of the Carnegie Steel Company's Edgar Thomson Works, and who planned and executed their mill alterations, thinks that the distance between the hot saws, which is found to yield a rail of the desired length, will be a sufficiently accurate and practical controlling factor as to the heat at which the rail is finished, and I concur with him, but also think that the lunette pyrometer will assist and always give quick results.

As observed by such an instrument, the heat at which rails of 80 pounds to the yard were furnished under old conditions in most rail mills averaged 1795 degrees F. In the Edgar Thomson mill under existing conditions the following observations were made, and have been followed by others, on 80-pound American Society section rails, and also on the lighter sections with similar results:

The temperature of partially formed rails when first placed on the cooling table was recorded as follows: 1742 degrees F., 1772 degrees F., 1772 degrees F., 1742 degrees F., 1772 degrees F., and 1772 degrees F., the average being 1762 degrees F.

The temperature of finished rails on leaving the rolls recorded 1600 degrees F., 1600 degrees F., 1574 degrees F., 1574 degrees F., 1574 degrees F., 1574 degrees F., 1574 degrees F., and 1600 degrees F., the average being 1580 degrees F.

The rails remained on the cooling table about 1 minute 15 seconds, the longest time observed being 1 minute 20 seconds, and the shortest 1 minute 6 seconds. It was found that the saws, to yield an 80-pound rail 30 feet long when cold, had to be set 1 inch nearer together than under the old practice.

In the Joliet McKenna Renewing Mill I found that the average temperature at which the rails were drawn from the reheating furnaces was 1750 degrees F. As the rails left the finishing rolls their average temperature was 1480 degrees F. It will be noticed that this was less than the Edgar Thomson average, and I believe that as the difficulties which surround all new manufacturing steps are overcome the latter works will finish a little cooler. But this can be overcome. If the steel is too cold it will spring the rolls, receive no work on the interior structure, and thus be unsatisfactory. While this can be easily theoretically understood, Mr. Morrison has demonstrated it by actual work.

Thomas Morrison and Julian Kennedy have united in a patent covering the handling of the rails while on the intermediate or cooling bed, the gist of which covers the placing of the head of one rail against the flange of another, and so on. The head of the outside rail to be first entered in the finishing pass is exposed, but the bottom of its flange is against the head of the next rail. The theory is that the flange being thinner, its heat will pass off quicker, and it will thus draw heat from the head of the rail lying against it, and so remain longer at a temperature sufficiently hot to roll, and by so doing give more time for the heat to pass off from the head of the rail, which, as stated, lies exposed. When that rail is entered in the finishing rolls, of course, the head of the next one, and which had been against its flange, becomes exposed, and so on.

I am happy to say that the new method of rolling at the Edgar Thomson mill does not interfere with its large product. In other words, the production is now quite as large as before its introduction, but the wear of the finishing rolls is greater, and it must be harder on the hot saws. The rails are finished free from scale, and the steel shows more elasticity under the cold straightening presses. The fracture of the rails is much closer—that is, the grain of the steel is much finer than in rails of the same section rolled under the old practice. Such metal must offer greater resistance to abrasion.

There are two rail mills at the Edgar Thomson Works. On the older one rails of light sections are rolled. At the time when I made my observations of the finishing temperatures of the 80-pound rails the old mill was rolling 40-pound rails. The blooms for these were taken indiscriminately from the heats of steel which went into the 80-pound rails. It was found that the average finishing temperature of the 40-pound rails was 1780 degrees F. As the size of the original blooms for both rails was the same, it follows that the light sections received the greater amount of work, but, as stated, the last, or finishing work, was performed at a higher temperature. I had rails of both sections nicked and broken, and found the grain of the 80-pound rail to be finer than that of the 40-pound rail. This, to me, is a convincing demonstration of the effect of work applied at low temperatures.

It is with great hesitation that I venture to suggest new rail sections, and perhaps the very fact of having been not only a member but the secretary of the Committee of the American Society of Civil Engineers on Standard Rail Sections, whose labors resulted in the recommendation by that society of what are now the practically recognized American standards, ought to make me hesitate all the more; but, on the contrary, I think the knowledge gained in that position gives me the necessary courage to open the question.

I regard the described rail rolling practice as a revolution in steel rail making, and, as such, it justifies that which would have been unnecessary under other conditions. Now that the makers have modified their rolling practice, it is but wise for the railway engineers to modify their rail sections, so as to obtain the best results from such practice, and in doing this, at the same time adopt sections which will be the best for renewing, while adhering to all of the essential features of the sections recommended by the American Society committee. Some railway officials may not be prepared to admit that renewing is to be considered, but I venture the assertion that when the time comes for the necessary removal of the heavy sections from tracks renewing of them will force itself upon their favorable consideration. At all events, if we adopt a section which, 1, is the best for the original manufacturer of the rail; 2, will give satisfactory results in service, and, 3, is good for renewal, it would seem as though we had acted wisely.

The American Society sections, as they are commercially designated, have made their way until they are practically the standard ones of the country. All roads do not use them, but the majority do. Therefore, they should be regarded as the basis on which new sections are to be designed. I would not advocate changing the 80-pound section, or those below it; but I do think, in view of the coming manufacturing conditions, the heavier sections can be advantageously altered.

The greater the area of metal in the head of a rail the longer it will take while lying on the intermediate table for the heat to pass off, and if sufficient time is not given the less will be the "fining" effect of the finishing pass, and the length of time which the rail can remain on the table depends on the temperature of the flange. The thinner it is the more rapidly will it cool, and hence, as stated, its condition controls. Therefore, I think it will be well to design new sections for 85, 90, 95 and 100 pound rails on lines adapted to this heat condition, and which will also be best for renewal into lighter sections.

In American railway practice rails are not permitted to remain in main lines until the wear of metal from off the top of their heads has exceeded ¼ inch. Side or curve wear is another matter. Logging roads and other usual customers for relaying rails cannot afford to buy them of such heavy sections. It certainly will not be economy to consign them to the scrap heap. Renewing them certainly will be true economy, and it can be confidently expected that the rails will be improved by each renewal. I believe that the existing Committee, No. 4, on Rails, of Railway Engineering and Maintenance of Way Association, is the proper body to prepare the sections, and hope they will do so.

Ranier & Williams, dealers in second hand engines and pumps, 63 South Canal street, Chicago, report that business in their lines is increasing. Recent orders from the South have been particularly good, and they have made shipments to Virginia, West Virginia, Arkansas, Mississippi and California.

Outside Interests in the Lake Superior Ore Ranges.

Of the total Lake Superior production of iron ore for 1900, 14,130,000 tons were directly by steel making interests of the territory between Johnstown and Chicago. Of this quantity 11,500,000 tons were by the great interests that have for the past few days figured so extensively in print, the Carnegie, Federal, Rockefeller, National, Steel & Wire and Steel Hoop, the latter coming in for a minor share of the production of the Mahoning mine controlled by them.

This leaves some 2,630,000 tons for the various outside steel making interests, such as Republic Iron & Steel, Jones & Laughlins, Cambria Steel, and outsiders sharing a portion of Mahoning and Biwabik's production.

From the gross product of the Lake region, amounting to 19,060,000 tons, there are left, above all direct steel making interests, but 4,930,000 tons. This is graduated among the leading mining companies as follows for 1900:

Cleveland Cliffs Iron Company (including leases)	1,011,000
Corrigan, McKinney & Co	750,000
Aragon and Commonwealth group	500,000
Pickands, Mather & Co	400,000
Ferdinand Schlesinger	360,000
Jos. Sellwood group	325,000
Hayes Bros	223,000
Crerar, Clinch & Co	187,000
Oglebay, Norton & Co	175,000
Eddy Bros	147,000
Republic Iron Company	130,000
S. S. Curry	125,000
Champion Iron Company	114,000
Montreal Mining Company	107,000
Kimberley interests	102,000

This makes a total for these properties of 4,656,000 tons, and leaving as the output of the remaining small properties less than 300,000 tons. Of this latter, most is independent, though some trifling proportion is affiliated with the steel making interests, through options, leases, association of stockholding interests and the like.

The figures above will require some trifling explanation. For instance, a part of the production of Mahoning is included in what is credited to the Steel Hoop, Republic and other interests; the same with Biwabik, a part of its ore going to interests among the associated companies and most of the rest to outside iron makers. The Republic Iron & Steel Company own the Franklin group, Mesaba range, one-half the Union in the same district and the Cambria and Lillie, Marquette range. They also have a small share, three-fiftieths, of Mahoning. Jones & Laughlins, the important Pittsburgh steel interest, have the Lake Angeline mine, Marquette range, and the Jackpot, Gogebic, the latter a new and untested property, but having probably the making of an important mine. The company are not strong in their ore reserves, as Lake Angeline is a property past its greatness. The Cambria Steel Company have a large interest in Mahoning and own the mines of the Penn Iron Mining Company, Menominee range.

Included in the mines of the Federal Steel Company is the Cundy, which is a Menominee range property owned by men identified with the Illinois Steel Company. The Manila Iron Company, a sub-company of Federal Steel, have been doing a large amount of exploration along the Menominee range, but have produced no ore and may not do so for some time to come.

The Cleveland Cliffs Iron Company, much the largest independent producers, would not now be such if their officials had been tempted by the flattering offers made them a year or two ago. The company have gone ahead increasing their properties and extending their business and are now in a most enviabe position. They have large mines at Ishpeming and at Michigamme, and are now developing what appear to be very promising finds at and near Negaunee. Of the production of this company for the year some 130,000 tons was from mines taken last year, some of which have since been dropped. This company are in position to keep their production about 1,000,000 tons a year for a long period and to furnish many qualities of ore at a reasonable mining cost. They own transportation facilities, both by rail to Lake Superior and by water to lower lake ports. They are developing a large charcoal iron interest, and will in the future consume a considerable quantity of ores, perhaps 25 per cent. or more of their average product. The idea is that these ores shall be of a character not able to bear long transportation, but that can be mined at a low cost.

Corrigan, McKinney & Co., who produced 750,000 tons in 1900, will doubtless win far more the coming year, perhaps up to 1,000,000 tons. They are just now opening a large western Mesaba mine and are about to develop another, to be called the Munroe; their Commodore, eastern Mesaba, is capable of larger production than it has made so far. Their Crystal Falls group of high phosphorus ore is important and they are developing on the eastern Gogebic some important Bessemer producers from long idle and abandoned mines. The possibilities of this company are much above 1,000,000 tons annually for a long period. They are consumers to some extent in Cleveland furnaces, and have sufficient vessel interests on the lakes to carry a major share of their production. They are mining on every range but the Vermillion.

The Aragon of the Commonwealth Iron Company, O. C. Davidson manager, is a large and important mine, capable of a production of 400,000 to 500,000 tons for a long time. The Commonwealth mine itself is a "has been," unless all signs fail. The company have recently taken a Marquette property that may be of value. The Commonwealth Company are a strong and progressive organization.

Pickands, Mather & Co. are affiliated with the Federal Steel to some extent, though their ore properties have not been secured for the benefit of that concern, nor are they managed with any special reference to their interests. Their largest property is the Sparta, Mesaba range, which is a lease from the Oliver (Carnegie) interest. Adjoining it they have the Malta and on the Menominee range the Hemlock, which is credited with a production of 73,000 tons in 1900. A Gogebic property is also controlled. The mines are not what would now be called large, though they are good for the present production and a little more for many years. The Hemlock contains a considerable quantity of ore running down to 56 per cent. in iron, though its better shipments are about 60 per cent., and the other properties are of high grade.

Ferdinand Schlesinger is a familiar name to Lake Superior iron producers, for he made his *début* in the Chapin and brought that property to a high state of efficiency years ago. His mines are the Newport and Palms, large mines and probably capable of extension. The Palms especially is to be regarded as a very considerable mine, though its shipments are not now so large. The Newport lies adjoining the Pabst (Carnegie) and the Norrie lenses are supposed to pitch across the property. Current rumor lately sold the Newport to the Olivers, but Mr. Schlesinger assures me there was no truth in the story.

The Sellwood properties are on the Gogebic, Mesaba and Marquette ranges, that on the latter being a lean Bessemer mine that will come into line later. Mr. Sellwood is manager of the mining interests of the American Steel & Wire, and to that extent his properties may be considered as affiliated with that concern. The latter are in the habit of buying their Bessemer ores from the Gogebic, but aside from a possible first call for what of these ores they may want have no interest in the mines. On the Gogebic are the Brotherton and Sunday Lake, and on the Mesaba the Hale, Kanawha and Roberts, to which will be added another the present season. None of these are large properties, but they can produce more ore than they have done so far, and continue to do so for a long time.

Hayes Bros. have the Ashland, Gogebic range, which was a worked out mine when they took it, in 1899. They have discovered enormous bodies of ore, and the mine will be a much larger producer of ore in the coming year than it has been of late. In 1890 it produced 435,000 tons, and may once more reach a production approximately as great. It is owned in fee.

Crerar, Clinch & Co. have operated the Mansfield and Columbia mines, and a few smaller properties have been

held by them. The Mansfield is no longer independent, having just been purchased by the Oliver Company, and it is not improbable that the Columbia may go the same way. The latter is a high phosphorus mine, very wet, and of considerable importance. The former is of no interest in the discussion of independent properties.

Oglebay, Norton & Co., Cleveland sales agents of the Rockefeller and other mines, have a number of mines under the Bristol Mining Company on the Marquette and Menominee ranges. The Bristol mine is a manganiferous ore; the Antoine group contains a siliceous "sweetener" for ore low in silica. The mines are capable of a product as large as is desired for some time, and may be classed as independent. The company control some explorations elsewhere.

Eddy Bros. of the Penobscot mine, Mesaba range, have no affiliations other than a long time contract for annual delivery to one of the large associated interests, something that many other concerns have. The owners of this mine hold it in fee and also hold a large lake shipping interest. Their production for the present year will be double that of 1900 and will be large for many years. There are several million tons of high grade ore in the property.

S. S. Curry, with the Cary and Superior mine, Gogebic range, and the Montreal Mining Company are independent interests of moderate size, with good ore and considerable reserves. They may be counted on for a fairly large production.

The Republic and Champion mines of the Marquette range are the most important independent properties of that district aside from Ishpeming. Neither are in their palmy days, both were almost abandoned and dropped permanently in 1893, and both have recovered some of their old prestige and will remain as producers of some considerable tonnage for a long time.

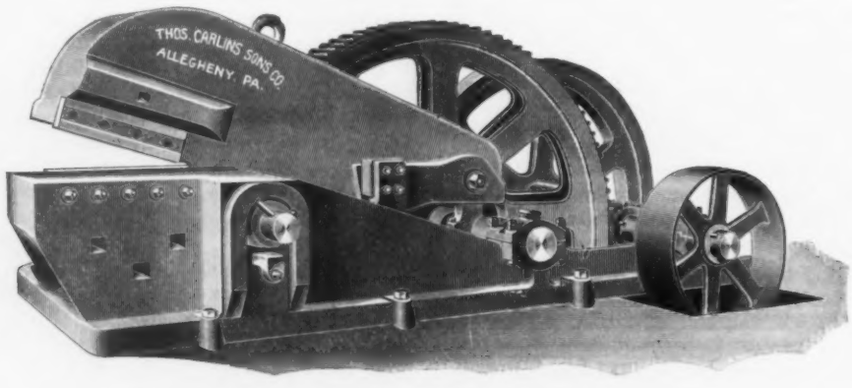
Kimberley interests, on the Mesaba range, were confined in 1900 to the Spruce mine, which was a new property of that year. It is good for a production of 300,000 tons a year for 25 years and contains a high grade Bessemer. The same interests hold other and possibly still more important deposits on the same range that will be opened in time or will find their way to the associated concerns.

There are no other mines among the independents of more than 100,000 tons annual production, and their total output, as shown above, is quite inconsiderable. There are explorations by independents on the several ranges, notably on the Marquette and Mesaba, that have shown or are likely to show enormous quantities of ore, but of these it is too early to speak. D. E. W.

An American Jessop Plant.—Within a few weeks representatives of William Jessop & Sons, Limited, of Sheffield, England, are expected to visit this country with a view of selecting a site for the establishment of American works. It has already been practically decided to build in the Pittsburgh district, but the exact location is still to be selected. W. F. Wagner, the American representative of the company, has spent considerable time of late inspecting various sites throughout Pennsylvania and the Middle West, and although Cleveland was at first viewed favorably he has decided that the Pittsburgh district would offer the most advantages. As far as public information is concerned the plans of the English company are still hidden. It is thought, however, that the works to be built immediately will be of but moderate proportions. They will, of course, be built with a view of subsequent enlargement, but just what will be done in this direction will be dictated by future developments. The English representatives have not as yet given out any information as to when they will leave for this country, but it is stated on excellent authority that they will arrive here within a few weeks. The plant will be employed in the production of the various lines of the famous Jessop crucible steel.

The Carlin Right Hand Lever Shear.

The engraving shows a new design of pitman driven shear built by Thomas Carlin's Sons Company, Allegheny, Pa. A number of new features are embodied in this shear, which is of particularly heavy construction. The gearing is inside of the bed plate, the gear being 106 inches diameter, 12-inch face, 4½-inch pitch, 17-inch cast steel pinion; the gear ratio is 6¼ to 1. The wheel and pinion are double shrouded, and a cast steel crank shaft 10 inches in diameter, has large disk on one side to which driving gear is keyed, giving the greatest possible strength to a shaft of this description. The shear is equipped with knives 34 inches long with four cutting edges and is driven by a fly wheel 8 feet in diameter. The speed is about 18 to 24 cuts per minute, and the shear covers a floor space of 9 feet 8 inches by 21 feet. The shear has a capacity to cut 6 x 8 inch soft steel billets, and with the pulley weighs about 125,000 pounds. The machine is furnished with engine or motor attached.



THE CARLIN RIGHT HAND LEVER SHEAR.

The Baldt Anchor Company.—Rumors of a new corporation in Chester, Pa., have been confirmed. The articles of incorporation for the Baldt Anchor Company were filed in the County Clerk's office at Gloucester, N. J. D. C. Watkins of Woodbury, N. J.; W. L. Gelston and Walter S. Bickley of Chester, Pa., are the incorporators, and the capital, which is all paid in, is $100,000. Frederick M. Baldt, the patentee of the anchor, and Walter S. Bickley, who is to be superintendent of the new concern, are connected in an official capacity with the Penn Steel Casting Company of this city.

Orr & Sembower, Incorporated, of Reading, Pa., announce that they have opened a New England branch at 95 Haverhill street, Boston, Mass., where they propose to keep a supply of their engines and boilers for immediate delivery to their New England trade. This branch will be under the direct charge of J. J. Hanna.

The Babcock Free Metal Bill.

WASHINGTON, D. C., February 19, 1901.—The reception accorded to the free metal bill introduced by Representative Babcock of Wisconsin on the 11th inst. indicates that, while the measure was primarily designed for political effect, yet the industries interested in those paragraphs of the metal schedule which are transferred to the free list will do well to give close attention to developments in Congress, especially in the event, which is by no means remote, that the President should summon an extra session.

The fact is becoming daily more apparent that a very considerable contingent of Western Republicans in both House and Senate is growing restive under the prodding of a constituency chiefly interested in agriculture and is being rapidly brought to a frame of mind in which it will advocate and vote for measures designed to reduce the tariff protection on all industries which appear to have passed into the control of large consolidations. The serious feature of this development lies in the fact that while this contingent is comparatively small it is distinctly influential in both House and Senate, and promises to hold the balance of power between the Democratic minority and the Republicans who entertain orthodox protection views. It goes without saying that such a measure as that presented by Mr. Babcock would have the solid support of the Democratic minority, and would therefore require for its passage only a handful of Republican votes. The vigor with which several prominent Republicans are repelling the suggestion that the Babcock bill is not in harmony with Republican policies and pledges indicates that a considerable number not only contemplate voting for it but propose to resist being "read out of the party" on that account. How far these members will actually go when called upon to vote for a free trade proposition can only be conjectured, and will probably depend upon the political situation in their several constituencies.

It is a significant fact that the favorable comments evoked by Mr. Babcock's measure have come from the prominent politicians rather than the parliamentary leaders on the Republican side of the House, and for this reason the more conservative members of the Ways and Means Committee have not hesitated to designate Mr. Babcock's action, in the language of the street, as "a gallery play." At the same time, the presentation of his measure and the approving comments that have been made upon it by Republicans who command considerable followings in the House have caused some anxiety, foreshadowing, as they do, the necessity for a great deal of hard work to keep the party in the House in line.

Representative Overstreet of Indiana, the author of the gold standard law passed at the first session of the present Congress, and one of the most active members of the House Judiciary Committee in the drafting of the anti-trust bill which passed the House and is now pending in the Senate Committee, has made the following public statement with regard to Mr. Babcock's measure:

"The bill is sound in principle and wise in policy. The duties proposed to be repealed are for protection rather than for revenue. It is, therefore, clearly Republican policy to discontinue such duties when protection to both the product and the labor in its manufacture is no longer necessary. It cannot be claimed that the interests which will be affected by this measure want further protection. The bill is entirely consistent with Republican principles and policies and should become a law."

Representative Mercer of Nebraska, chairman of the House Committee on Public Buildings and Grounds and secretary of the Republican National Congressional Committee, makes a similar statement, saying: "I have read Mr. Babcock's bill with a great deal of interest. It seems to me that the Republican party is rapidly approaching a stage where it will have to take cognizance of legislation of that kind. For years the Republicans have legislated along protective lines to build up American industries. When those industries have reached a stage where not only they no longer need protection, but are in position to dictate terms to everything else, it seems time to call a halt."

Representative Hemenway of Indiana, a leading Republican member of the Appropriations Committee, makes this statement: "It is a good bill and ought to pass. While I do not admit that the protective tariff is responsible for trusts, still, where a protected article becomes a monopoly the trust can be dealt a blow to the extent of repealing the tariff. I also concur in the spirit of the Babcock bill in this: that here is an industry that has been protected until it needs no further protection and is able to stand alone."

Representative Landis of Indiana, a prominent Republican and a strong partisan, goes even further than the author of the bill in assailing the consolidations at which it is aimed. He says: "There can be but one object in this consolidation and the elimination of competition. The various industries amalgamated by this $1,250,000,000 capitalization were nourished from their birth by patriotic people giving support to the principle of protection. The various infants have grown to giants and the giants have now joined to prey upon the people to whose liberality and generosity they owe their existence. The people will expect this Congress to teach these ungrateful beneficiaries of their bounty a lesson, and if the next session of Congress does not do it the people will send one here that will. These trust formers and competition destroyers appear to forget that this national institution of ours rests on the ballot. The ballot is still in the hands of the individual, and the individual still has a fair idea of his rights. If I had my way about it, the Babcock bill would pass at this session. By the time we come together again we would know how effective such legislation was, and, if satisfactory as a trust destroyer, the good work could go on, not in hate, nor in malice, nor in haste, but in wisdom, to the end that the individual be protected in his rights. I believe capital should have walled about it every security and safeguard. But there is a point beyond which capital should not go. An anarchist is not necessarily a poor man. A trust that destroys legitimate competition by brutal, arbitrary power is just as much of an anarchist as the fellow who destroys a building with a bomb. I am against both of them."

Representative Pearre of Maryland, who has made something of a reputation as an anti-monopolist, approves the bill, saying: "It is along exactly the right line, of which opinion I gave earnest by introducing in the early part of the last session a bill similar in character, but more comprehensive. I think that the most practicable and most direct method of reaching the trust question is through the provisions of such a bill. While it is true that it does not correct the whole evil of trusts, it is the method nearest at hand to remedy a portion of the abuses."

The Republican members of the Ways and Means Committee, except Mr. Babcock, are very emphatic not only in declaring their opposition to the bill, but in asserting that it would fail utterly of its object. Chairman Payne opposes the bill strongly and declares that it would not have the effect desired by Mr. Babcock, but would stimulate the formation of an international trust which would control the prices for the whole world. The main hope of defeating the object of the proposed steel consolidation, he said, was in the erection of large competing plants.

Representative Dalzell, who is regarded as the champion of the iron and steel industries on the Ways and Means Committee, ridicules the idea that Mr. Babcock's bill would injure the business of the proposed consolidation. Such a combination, he says, would be independent of the tariff, but free trade would quickly wipe out the small manufacturers, who would find themselves unable to compete with the surplus of European products that would be periodically dumped into this country.

Since the introduction of his bill Mr. Babcock has been at some pains to prepare a statement in which he endeavors to reconcile the principle of his measure with the policy of the Republican party. In this connection he says:

"The Republican theory of protection has been to so adjust the tariff as to protect, build up and develop infant industries, to the end that our own people might manufacture the goods that we consume. It is well known that the iron and steel industry, in part owing to the great natural advantages enjoyed here, together with the business tact and foresight of our manufacturers, combined with the superior intelligence of the American workman, has accomplished more than the most ardent protectionist would have predicted twenty years ago, until to-day, instead of needing the protection of a tariff, they are exporting many of the products of iron and steel manufacture to all parts of the world. This being the case, it would seem that a good public policy demands that the tariff on a great percentage of these articles should be removed, that the people might have the benefit of other markets and not be restricted to prices that are made by a combination of interests brought together for the purpose of regulating competition.

"It has been suggested that my bill embodies Democratic policy. That is not true in any particular. The Republican party is, and has been, the party of progress. It has always been abreast of events and should be ready to meet the new conditions that exist at the present time—conditions that have changed entirely since the passage of the McKinley or the Dingley bill. It is certainly wisdom on the part of Congress to afford such relief as it is able to do, by the repeal of tariff laws affecting schedules where monster organizations have been organized to regulate competition—schedules which practically produce but little revenue, but which are sufficiently high to prevent the importation of foreign material or manufactures.

"I do not claim that my bill is perfect, but that the principle involved is. There may be additional sections, such as iron ore and tin, that should be repealed, and possibly there may be certain classes of material that should remain on the dutiable list that are included, but if there be any of this kind they will be a very small percentage of the whole. I hope to get consideration of this measure at the next session of Congress, and I believe public sentiment will demand prompt action by Congress and that it will not be criticised as Democratic or Populistic, but in the line of good, sound, consistent Republican policy." W. L. C.

Cavanaugh & Darley, Randolph and Canal streets, Chicago, dealers in pulleys and shafting, and general agents for the Witte gas and gasoline engines, made by the Witte Iron Works Company, Kansas City, have been appointed Western agents for the Grant-Ferris Company, manufacturers of the Howard hydro-carbon motors. The same firm have just equipped the factory of the American Clock Company, Chicago, with pulleys and shafting.

The Reese Bosh Plate and Holder.

A number of important points are to be considered in designing bosh plates for the protection of blast furnace bosh walls. There should be, by means of properly arranged baffle plates, a good circulation of cold water through those parts of the plate subjected to the greatest heat. Despite the best of water circulation, however, bosh plates will sometimes crack or burn from one cause or another, particularly after a furnace has been in blast for several years and the metal of the exposed part of the plates has been worn thin by the abrasion of the stock sliding over them in its descent along the furnace walls. Therefore, the plate should be so designed as to be easily removed from the wall and a new one inserted in its place, with a minimum loss of time and labor. Also, the fit of the new plate in the opening left by the one withdrawn should be so tight that there may be no opportunity for the blast to blow out around it.

Bosh plates are now almost universally made of bronze or copper, which is very expensive. A properly designed plate should, therefore, occupy only that part of the thickness of the wall which needs water cooling—namely, the inner part. In order to obtain this economical advantage it is evident that some means must be provided by which the plate will be easily accessible from the outside for withdrawal and also to prevent its being tilted downward by the weight and motion of the stock passing over it, or by its own weight, when the furnace walls become worn, thereby breaking off its water connections, with the consequent loss of the plate, or loss of time in renewing these connections.

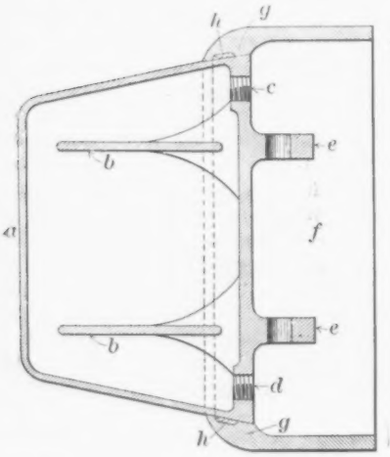


Fig. 1.

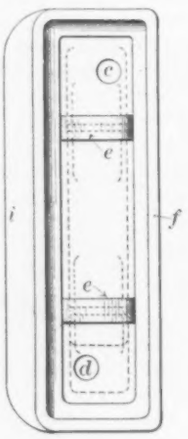


Fig. 2.

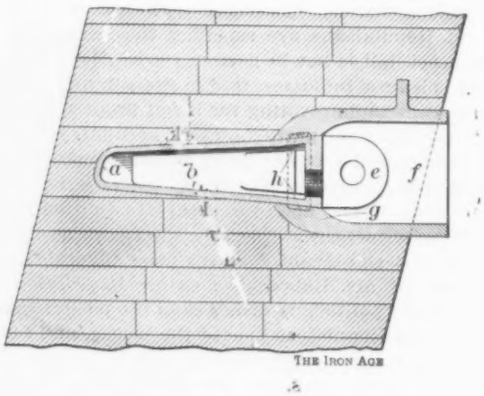


Fig. 3.

THE REESE BOSH PLATE AND HOLDER.

The bosh plate and cast iron holder shown in the accompanying illustration, for which letters patent have been granted to Arnold & Reese of Lebanon, Pa., are thought to embody the above points. Figs. 1 and 3 show baffle plates, *b*, which force the cold water entering at *c* to flow around the nose or inner end of the plate, discharging at *d*. A small portion of the water passes back of the baffle plates, thus keeping the water in the body of the plate in circulation. The feed opening *c* is placed on a level with the bottom of the plate to prevent any accumulation of mud from dirty water, and the discharge is placed at the top so as to avoid the formation of air pockets in the top of the plate. A cast iron holder, *b*, occupies that part of the wall which it is unnecessary to cool with water. The plate fits into the holder on a bevel joint, *g*, to which it is made to conform, and being tapered inward, may be inserted into the holder until a tight joint is effected. Any leak of blast is thus prevented and the plate is held firmly in place in its original horizontal position no matter how great the weight of the stock may be on it or how badly worn the walls may become. The bevel joint of the holder is pro-

vided with a groove, *h*, which is filled with asbestos or clay, to further insure a perfectly tight joint and also to lessen the friction of the joint when withdrawing the plate. Lugs *e* are cast on the plate with holes through them for the insertion of a drawing bar. A few jolts with the drawing bar will loosen the plate, when it may be drawn out by hand and a new one inserted in the holder. A flange, *i*, is cast on the top of the holder to give it strength to bear the weight above it and to prevent its being loosened when jolting the plate. Plates made after this design have been drawn out and replaced by new ones with pipe connections made in 12 minutes. They have been in successful use for nearly three years.

The Crucible Steel Company of America.

By action of the Governing Committee of the New York Stock Exchange the preferred and common stock of the Crucible Steel Company of America was placed on the regular list of the exchange last week. According to the statement which was submitted by the company the present authorized and issued capital stock, which was admitted in its entirety, includes $25,000,000 of cumulative preferred 7 per cent. stock and $25,000,000 common stock. Each class co of 250,000 shares at $100 each, and all are fully paid and non-assessable.

The company were incorporated under the laws of New Jersey on July 21, 1900, and control the following properties:

Crescent Steel Works.
La Belle Steel Works.
Anderson, Du Puy & Co. Works.
Benj. Atha & Illingworth Company Works.
Burgess Steel & Iron Wo s.
Spaulding & Jennings Company Works.
Aliquippa Steel Company Works.
Beaver Falls Steel Wor s.
Cumberland Steel & Tin Plate Company Works.

Other holdings through ownership of stock are as follows:

Park Steel Company Works.
Howe, Brown & Co., Limited, Works.
Singer, Nimick & Co., Incorporated, Works.
Sanderson Bro Steel Company Works.
Consumers' Heating Company.

Following is a description of the properties:

Ninety-four per cent. of the capital stock of the Park Steel Company, organized originally in 1861, located at Pittsburgh, covering 16 acres in fee and 9 acres of leased ground, and having a capacity of crucible and open hearth steel, boiler plate, copper in sheets and bars, of 150,000 tons annually. Also about 57 acres on the Monongahela River.

The real estate, plant and equipment of the Benjamin Atha & Illingworth Company, at Harrison, N. J., organized originally in 1864, located at Harrison, N. J., including 20 acres of ground, with all necessary buildings, machinery, tools and appliances for the production of [illegible]e, merchant bar steel, ordnance and projectiles to the amount of 30,000 tons annually.

The real estate, plant and equipment of the Spaulding & Jennings West Bergen Steel Works, organized in 1860, located in Jersey City, N. J., including 8 acres, with all necessary buildings, machinery, tools and appliances for the production of crucible, open hearth and Bessemer steel to the amount of 12,000 tons annually.

The real estate, plant and equipment of the Crescent Steel Company, organized originally in 1865, located at Pittsburgh, including 10 acres, with all necessary buildings, machinery, tools and appliances for the production of fine hammered and rolled bar steel and drawn wire to an amount of 25,000 tons annually.

The real estate, plant and equipment of the Sanderson Brothers Steel Company, organized originally in 1876, located at Syracuse, N. Y., including 13 acres, with all necessary buildings, machinery, tools and appliances for the manufacture of crucible and open hearth steel, drill rods and drawn wire to the amount of 10,000 tons annually.

The real estate, plant and equipment of Howe, Brown & Co., Limited, originally organized in 1859, located at Pittsburgh, including 5.4 acres, with all necessary buildings, machinery, tools and appliances for the manufacture of crucible and open hearth steel and boiler plate to an amount of 20,000 tons annually.

The real estate, plant and equipment of Singer, Nimick & Co., Incorporated, organized 1848, located at Pittsburgh, including 7 acres, with all necessary buildings, machinery, tools and appliances for the manufacture of crucible and open hearth steel, carriage springs and axles to an amount of 16,000 tons annually.

The real estate, plant and equipment of the La Belle Steel Company, organized originally in 1863, located in Allegheny City, Pa., including 8 acres, with all necessary buildings , machinery, tools and appliances for the manufacture of high grade crucible and open hearth steel to an amount of 25,000 tons annually.

The real estate, plant and equipment of the Aliquippa Steel Company, Aliquippa, Beaver County, Pa., organized 1891, including nearly 16 acres, with all buildings, machinery, tools and appliances for the manufacture of crucible and open hearth plate and sheet steel to an amount of 10,000 tons annually.

The real estate, plant and equipment of Anderson, Du Puy & Co., organized originally as the Pittsburgh Steel Works, 1845, located at McKee's Rocks, Pa., near Pittsburgh, including 5 acres, with all the necessary buildings, machinery, tools and appliances for the manufacture of crucible and open hearth steel, forgings, railroad springs and tools to an amount of 25,000 tons annually.

The real estate, plant and equipment of the Beaver Falls Steel Works, Beaver Falls, Pa., organized 1875, located at Beaver Falls, Beaver County, Pa., including 3½ acres, with all necessary buildings, machinery, tools and appliances for the manufacture of crucible and open hearth, plow, spring, cutlery and file steel to the amount of 7200 tons annually.

The real estate, plant and equipment of the Burgess Steel & Iron Works, organized 1871, located at Portsmouth, Scioto County, Ohio, including 43 acres, with all necessary buildings, machinery, tools and appliances for the manufacture of plow, tool, boiler plate and machinery steel to an amount of 40,000 tons annually.

The real estate, plant and equipment of the Cumberland Steel & Tin Plate Company, organized 1873, located at Cumberland, Allegheny County, Md., including 7 acres, with all necessary buildings, machinery, tools and appliances for the manufacture of crucible, open hearth, tool, machinery and agricultural steel to an amount of 12,000 tons annually. Crucible works plant consists of a three-story brick building, 59 x 160, with four kilns and most modern machinery; it has an average output at present of 900 crucibles per day, and additions are now being made which will increase the capacity to from 1200 to 1500 crucibles per day.

Consumers' Heating Company have 14 miles of pipe line, 11 gas wells and complete equipment of engines, boilers, tools, &c.

The business proposed to be transacted, and which is now being carried on, is the manufacture and marketing of crucible and open hearth steel and iron, by and through the several constituent companies, and doing all things necessary and proper for the more economical management and distribution by means of agents and agencies in all parts of the United States and foreign countries.

After citing various paragraphs of the certificate of incorporation and by-laws of the company, the statement says:

This company cannot furnish a report showing the result of their business for a period of two consecutive years, for the reason that the company were incorporated as of date July 21, A.D. 1900, and the consolidated accounting instituted November 1, 1900; and, furthermore, nearly all the properties were purchased only so far as the plants and merchandise are concerned. The books and accounts were not purchased and are not accessible to the company's officers, but we are enabled to present the following condensed statement:

Earnings for Fiscal Year Prior to Consolidation.

Park Steel Company	$1,346,073.44
Crescent Steel Company and La Belle Steel Company	699,102.81
Howe, Brown & Co., Limited; Anderson, Du Puy & Co., and Singer, Nimick & Co., Incorporated	677,802.54
Cumberland Steel & Tin Plate Company, Burgess Steel & Iron Works, Beaver Falls Steel Works, Aliquippa Steel Company, and Consumers' Heating Company	462,062.99
Sanderson Bros. Steel Company, Benjamin Atha & Illingworth Company, and the Spaulding & Jennings Company	812,773.80
Total earnings	$3,997,815.58

Balance Sheet, September 1, 1900.

ASSETS.

Estate of the Crucible Steel Company of America, consisting of the real estate, buildings, machinery, good will, patents, trade-marks and appliances of the—		
Park Steel Company (94 per cent. of stock), Crescent Steel Company, Anderson, Du Puy & Co., La Belle Steel Company, Singer, Nimick & Co., Incorporated, Howe, Brown & Co., Limited.	$30,694,100.00	
Sanderson Bros. Steel Company, Benj. Atha & Illingworth Company, The Spaulding & Jennings Company	8,044,600.00	
Aliquippa Steel Company, Burgess Steel & Iron Works, Cumberland Steel & Tin Plate Company, Beaver Falls Steel Works	4,438,239.08	
		$43,176,939.08
Treasury stock:		
Preferred, 6,005 shares	$600,500	
Common, 5,891 shares	589,100	
		1,189,600.00
Inventories of foregoing	$5,304,764.93	
Stock Consumers' Heating Company	125,000.00	
Stock Central Plow Company	25,000.00	
Real estate, West Elizabeth, 57 acres	171,000.00	
Crucible Works	150,000.00	
Organization expenses	73,929.88	
Cash	487,805.19	
		6,337,500.00
Total		$50,704,039.08

LIABILITIES.

Capital Stock:		
Preferred		$25,000,000.00
Common		25,000,000.00
Reserve for dividend on 6,005 shares preferred stock Park Steel Company, one year		42,035.00
Bonds, mortgages and accrued interest not due and unpaid:		
La Belle Steel Company, mortgage	$175,000.00	
Interest on same	1,872.83	
Benj. Atha & Illingworth Company, bond	110,500.00	
Interest on same	2,486.25	
The Spaulding & Jennings Company, bond	3,500.00	
Aliquippa Steel Company, bond	31,000.00	
Interest on same	155.00	
		324,514.08
Profit and loss, for adjustment		337,490.00
Total		$50,704,039.08

Since the date of the above balance sheet, the preferred and common stock held in the treasury of the company has all been sold and is now outstanding.

The officers of the company are: C. H. Halcomb, president; Jas. W. Brown, first vice-president; Benjamin Atha, second vice-president; Robert E. Jennings, third vice-president; F. B. Smith, secretary; Reuben Miller, treasurer.

Executive Committee: W. G. Park, chairman; H. Du Puy, secretary; C. H. Halcomb, Jas. W. Brown, Robert E. Jennings, Benjamin Atha, Reuben Miller.

The directors are: C. H. Halcomb, W. G. Park, Jas. W. Brown, Benjamin Atha, Robert E. Jennings, F. B. Smith, Reuben Miller, H. Du Puy, Alex. W. Thomas, A. W. Mellon, Jas. H. Park, Jas. M. May, H. H. Dickey, L. D. York, W. H. Singer, G. Bruce Harton.

The registrars of the company are: The Farmers' Loan & Trust Company, New York City, N. Y.; Fidelity Title & Trust Company of Philadelphia, Pa.

The transfer agents of the company are: Union Trust Company of Pittsburgh, Pa.; Corporation Trust Company of New Jersey.

The Future of Engineering.

In his inaugural address, Henry Hodgson, president of the Manchester (England) Association of Engineers, devoted the first part to the question of education, both general and technical. In connection with general education he thought that the schools of the higher grade type should be specialized, and that the youths who showed marked aptitude should be able to continue their education in schools having special provision in the way of teachers and instruments for the particular branch they favored. He would have education in all its stages made free, and carried to the fullest extent of the individual ability of each. Turning to the subject of technical education proper, this, he thought, was very far from being in a very satisfactory condition, and a great deal of the money spent on so called technical education was wasted. Technical education, in his opinion, could only be carried out in specially equipped schools provided with highly trained special teachers, and taught at a time when the brain of the taught was in a right condition for receiving what was offered it, and which could not be at the end of a fair day's work. In his opinion it was a mistake to think that a youth, after having completed his day's work, either in a school or a workshop, should or could reap sufficient advantage from attending a night school for the purpose of receiving special education to make it worth the labor and cost. The practical education of our youths in engineering and in allied trades must necessarily be obtained in the workshop, as no workshop school could be kept up to date in the methods and systems of construction, which were changing from day to day; and as these schools had not the incentive of commercial success to spur them on, there was not the inducement, even if they had the knowledge, to keep them fully abreast of workshop practice. Speaking as one who had something to do with youths who had received a so called practical training in these school workshops, he found that one of the first things to be done was to get them to unlearn almost all of the things they had been taught. He would recommend that when a youth had finished his general education on the lines he had already suggested, he should spend two to three years in the workshop, and then, if he had the desire and the mental ability, he should continue his workshop education as a half timer, and the remainder of the day should be spent in a technical school furnished with the requisite teachers and appliances. If such a system were generally adopted, he thought the advantage resulting to the employers would in the long run amply compensate them for what at present might seem to involve some disorganization in the shop, and for the cost of the youth's time and wages when attending the school. In concluding his remarks on this topic, Mr. Hodgson drew attention to one feature of our engineering education which did not seem to have received much attention—viz., the combination of the artistic with the useful. The Paris Exhibition was an object lesson to him on this point, as in many of the exhibits appertaining to engineering there was a combination of these two qualities, which, while very pleasing to the eye, admitted of no fault being found with the mechanical construction. He thought, however, it was only fair to say that, so far as locomotives were concerned, we certainly led the world in the combination of the useful with the beautiful, and further, he might say that our cousins across the Atlantic were far worse sinners than ourselves against the canons of good taste.

In the second portion of his address Mr. Hodgson referred to the machine question in the engineering trades. As they all knew, this question was one of the principal, if not the principal, questions that led to the great strike and lock out of three years ago. This question, in an accentuated form, was again coming to the front, and it was the fear of trouble again arising on this matter which was no doubt hindering to a large extent the adoption of labor saving automatic and semi-automatic machines in their work shops. How far was the fear of the consequences to deter them from adopting what the conditions of the times and of outside competition would in the very nature of things force them to adopt? This question would have to be solved, and he hoped once

for all, ere long, as the forces of trades unionism were again being got into line to oppose the introduction and the use of these necessities. The education of the people had not yet reached the point at which the introduction of labor saving machinery, and consequently greater producing plant, was welcomed by the bulk of the population. He entirely concurred in opinions which had been recently expressed, to the effect that the real trouble in connection with British industries was due to overconservatism, imperfect distribution of labor, insufficient specialization and the tyranny of labor. These were four cardinal points affecting the present situation, which he indorsed to the fullest extent, and he could only urge one word in justification of one of the things complained of—viz., insufficient specialization—and that word was that most of our English businesses had grown up from small beginnings, and at the same time when requirements were less, and a man, to keep his works going, had to turn his hand to whatever work came his way. The reproach was, he thought, gradually being removed, and he was of opinion that we would travel faster in this direction than we had hitherto done. Our go ahead friends across the Atlantic had profited by our experience and mistakes, and had, as they always aimed to do, gone one better than we had. In conclusion Mr. Hodgson quoted with approval an article by a labor leader which recently appeared in one of the local journals, and in which the writer expressed the opinion that automatic machinery ought, in the very nature of things, to be watched by what was termed unskilled labor; and, further, the hope and belief that the century upon which we had entered would mark two great changes in the sphere of industry—viz., the interchangeability of labor and the specialization of industry. By interchangeability of labor was meant that granting of the privilege and power of any workman, no matter how low in the industrial scale, to rise to higher positions and grades according as opportunity presented itself, and as his knowledge and skill developed. He was not always in agreement with the expressed views of the labor leaders on labor questions, but he agreed with the writer's views on this particular matter.

The Baldwin Locomotive Works Output in 1900.

The Baldwin Locomotive Works of Philadelphia during the year 1900 built 1217 engines, of which 426 were of the Vulcan compound type, 363 were exported to foreign countries, 48 were electric and 6 were compressed air locomotives. The total weight of the product of locomotives alone was 192,777,900 pounds, or 96,388 tons, but, including spare parts, the weight of the product largely exceeded 100,000 tons of finished work. This product involved the consumption of 52,000,000 pounds each of forgings and castings, and the consumption of 90,000 tons of coal. It also involved bringing into the works 10,780 carloads of material and shipping away 2536 carloads, besides finished locomotives shipped on their own wheels.

Assuming, says the *Railway and Engineering News*, that the average length over all of each locomotive and tender is approximately 60 feet, the year's product would form a continuous train nearly 14 miles in length. The average weight of locomotive and tender empty for 1900 was 158,500 pounds: the average weight of locomotive and tender empty for 1890 was approximately 106,000 pounds, an increase of fully 50 per cent. in average weight. The average hauling capacity of each locomotive on a level may be estimated at 4200 tons and on a grade of 1 per cent. at 1020 tons.

The Standard Acid Company.—Iola, Kan., is to have a sulphuric acid plant, which is to calcine the blende which is used in the zinc smelters of that spelter manufacturing center. The company have been organized as the Standard Acid Company of Iola, Kan., by William Lanyon, long identified with the zinc industry as manager, and by R. Ziesing, formerly of La Salle, Ill., as superintendent. The latter will also erect a three-block zinc plant, which will use the calcined blende from the acid works.

The National Lead Company.

Advance sheets of the annual report of the National Lead Company which will be submitted to the stockholders at their meeting to-day show the following balance sheet for the fiscal year ending December 31, 1900:

Assets.

	December 31, 1900.	December 30, 1899.	Increase.
Plant investment	$23,479,630.52	$23,476,973.60	2,656.92
Other investments	1,230,520.78	587,911.03	642,609.75
Stock on hand, manufactured, in process and raw	5,682,718.29	5,122,760.57	559,957.72
Treasury stock	190,600.00	190,600.00	.....
Cash in banks	724,226.41	313,115.78	411,110.63
Notes receivable	181,385.64	198,618.54	*17,232.90
Accounts receivable	1,576,875.16	1,461,245.54	115,629.62
Totals	$33,065,956.80	$31,351,225.06	†$1,731,964.64

Liabilities.

Capital stock	$30,000,000.00	$30,000,000.00	.....
Surplus	1,208,947.85	1,324,841.12	*$115,893.27
Mortgages	12,603.25	12,603.25	.....
Notes payable	1,835,000.00	.....	1,835,000.00
Accounts payable	9,405.70	13,780.69	*4,374.99
Totals	$33,065,956.80	$31,351,225.06	†$1,835,000.00

Surplus Account.

Surplus, December 30, 1899		$1,324,841.12
Net earnings during 1900		1,076,440.73
Total		$2,401,281.85
Dividends paid during 1900:		
On common stock	$149,054.00	
On preferred stock	1,043,280.00	
		1,192,334.00
Surplus, December 31, 1900		$1,208,947.85

*Decrease. † Net increase.

The report continues:

It will be noted that the net earnings for the year were $1,076,440.73, the decrease being due to a restricted volume of business consequent on high prices and the limited building done early in the year. The loss of customary spring and summer tonnage was only partially recovered by increased activity in the fall.

Attention was called in the last annual report to the policy of the company as concerned the extension of their business. The work then in progress became productive in September and is justifying the investment. The separate company under whose organization this specific work has so far progressed, and whose stock is owned by this company, has been advanced by us $1,139,167.77 for this purpose, which sum is charged to "Other Investments" account. In part payment we have received from them $1,000,000 first mortgage 5 per cent. gold bonds, being the entire issue on the property in question, the payment of which, both as to principal and interest, is guaranteed by this company. Of this issue $50,000 have been sold at par and the remainder are in the treasury.

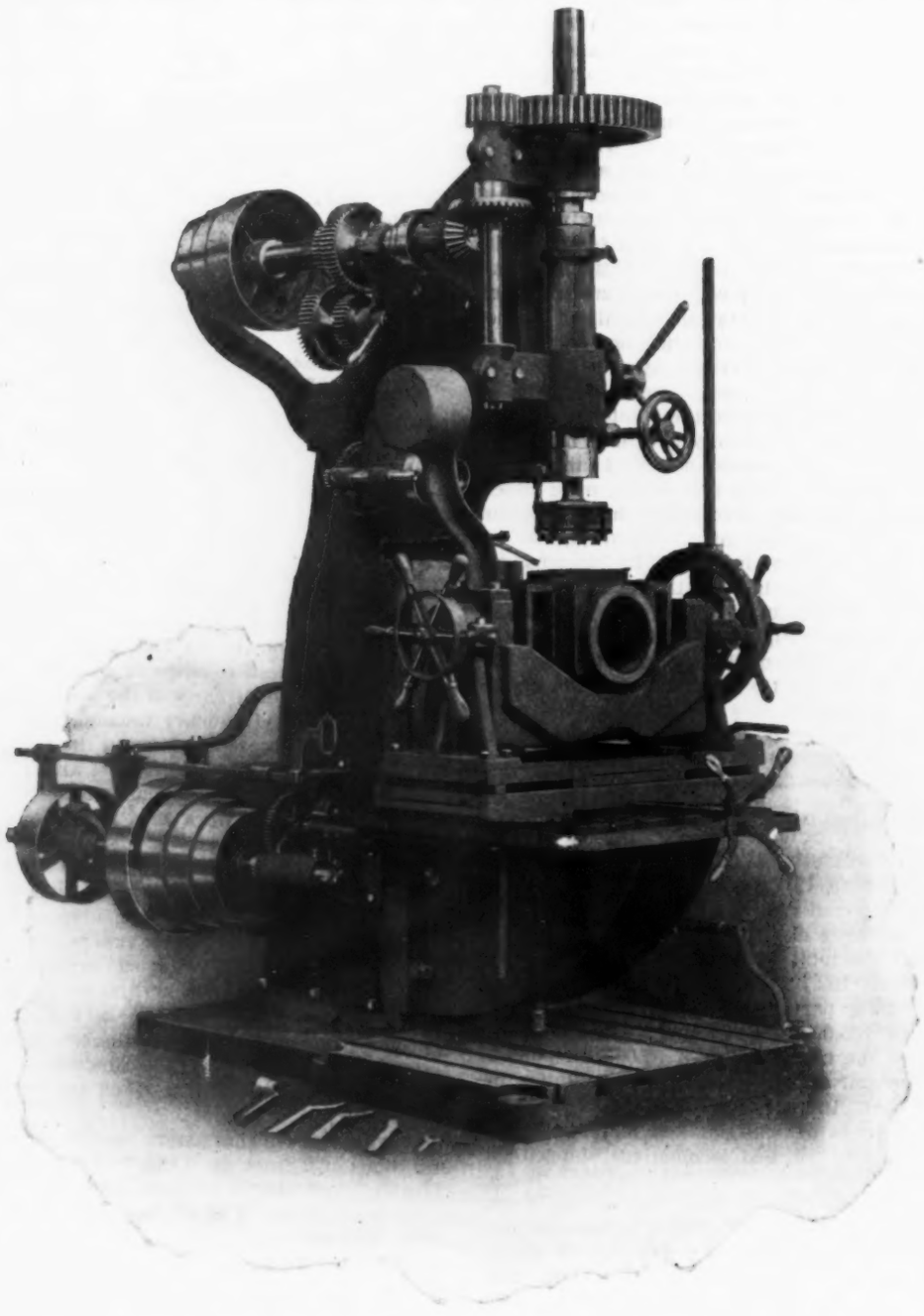
It will be noted that assets have increased in the several items of "Stock on Hand," "Cash," "Accounts Receivable" and "Other Investments." The working capital of the company is at present necessarily supplemented by borrowings to provide for new investments and increased cost of raw materials in all departments of manufacture and stockholders will also recognize the necessity for larger use of capital to realize a like aggregate of earnings. Competition is active but not destructive of returns to an economically managed business.

The physical condition of your properties is being maintained by liberal expenditures which, for the period under review, have been $86,194.12 for new work replacing old and $112,104.21 for current repairs, making an aggregate of $198,298.33, all charged to operating expenses.

A bill has been introduced in the New York State Legislature for the establishment by the State of a school of electrical engineering at Union College, Schenectady. The bill appropriates $150,000 for the erection and equipment of the school and provides for an annual appropriation of $25,000 for instruction. One hundred free scholarships are to be made available for students who have been residents of the State for at least one year.

The Baker Drilling, Boring and Tapping Machine.

The new drilling, boring and tapping machine built by Baker Brothers of Toledo, Ohio, is intended for tapping steam and gas fittings from 2 inches up to 8 and 10 inches in diameter. It is also equally well adapted for drilling, counterboring and facing such work as heavy steel castings, drop forgings, boring engine and pump cylinders, axle boxes, steel gears and pinions, and



THE BAKER DRILLING, BORING AND TAPPING MACHINE.

in fact any work where the pieces themselves are not large, yet require a considerable amount of metal to be removed. The feeding mechanism is very heavy, the worm gear being of steel and driven by a hardened steel worm running in oil. The pinion driving the large main gear and all the bevel gears are of steel. The ratio of the back gearing is 1 to 17.6. On the countershaft are clutch pulleys for tapping. A quick reverse for the spindle when tapping is obtained by driving the reverse pulley at a high rate of speed. The shifting of the clutches for reversing or stopping and starting the machine is accomplished by moving the lever at the right hand side of the machine. The table is raised and lowered by means of the handle, as shown in the right hand corner, which revolves a worm running in a worm gear. In case it is desired to machine work which is too large to be placed upon the table, the table can be quickly removed from the frame and the work fastened directly to the base, which is planed off true and is formed with T-slots. There are six changes of speed for the main spindle and by means of a compound feeding device six changes of feed are obtained for each spindle speed. This covers every range of work, from boring ordinary holes 1 inch in diameter up to 4 inches in solid steel, or counterboring up to 8 and 10 inches in diameter. Cast iron cylinders from 10 to 14 inches in diameter can be bored easily. The spindle is of crucible steel 3½ inches in diameter and is counterbalanced by a weight hung inside of the main frame. The end thrust of the spindle is taken on hardened tool steel roller bearings. The table is of the bracket form and is so massive as to do away with springing. These machines can be used singly, or by means of brackets any number can be bolted together to form a gang. An oil pump is driven from the countershaft.

The engraving illustrates the machine with a chuck

for holding pipe fittings, from the smallest up to 10 inches in diameter. The fitting is placed in position and the chuck swings so as to tap a two or three way fitting in one setting. The locking device is clearly shown in the cut. This holds the work in position for tapping fittings at angles of 45, 90, 135 and 180 degrees. The chuck is mounted upon slide ways, giving it a transverse as well as longitudinal movement. This movement is quickly accomplished by means of the handles in front, and will align the spindle with the work almost instantly. The large overhanging weight is for the purpose of balancing the yoke of the chuck so that it can be turned easily. The weight of this chuck is 1650 pounds.

The main dimensions of the machine are: Vertical traverse of table, 25 inches; maximum distance from spindle in its highest position to table in its lowest position, 38 inches; maximum distance from spindle in its highest position to bed plate, 61 inches; vertical traverse of spindle, 14, 16 and 20 inches; size of table, not including oil groove, 29 x 30 inches; size of finished part of bed plate, 32 x 46 inches; distance from center of spindle to frame, 17½ inches; distance from center of spindle to rack, 16¼ inches; ratio of plain gearing, 1 to 6.8; ratio of back gearing, 1 to 17.6; speed of spindle without back gears, 63, 51 and 41; speed of spindle with back gears, 25, 20 and 16; floor space required, 8 feet 4 inches long by 4 feet wide; weight of machine crated, 6800 pounds.

A. J. Moxham on the Near Future of Steel in Canada.

Under the auspices of the Canadian Manufacturers' Association, A. J. Moxham, general manager of the Dominion Iron & Steel Company, delivered an address in the rotunda of the Board of Trade Building, Toronto, on Friday evening. The subject was "The Near Future of Steel in Canada."

He started with some general propositions. First he laid it down that, broadly speaking, the cost of the finished steel varies with that of the pig metal. Next that the variable quantity in the cost of production is the cost of material, and that the cost of labor is not necessarily variable. Every improvement in the manufacturing art and in machinery eliminates some difference of labor cost at different points of production, and such improvements tend to reduce that element to one level. With material, he proceeded, it is different. There are no two localities in the world where raw material, distance from market, &c., are the same. Such differences cannot be eliminated. When Mr. Carnegie built the Pittsburgh Bessemer road, 155 miles long, to Lake Erie, it was said that Pittsburgh was now a lake port; "but," said Mr. Moxham, "it always seemed to me that the 155 miles were still there." Hence, to investigate the advantages of any given location distance must be studied. In a nutshell, the problem is entirely a matter of freight. Nowhere has nature assembled ore, coal and limestone in the exact proportionate quantities and qualities required. Though the materials are often found side by side, as in Nova Scotia and Pennsylvania, but where the ore is all that is to be desired, there is something lacking in the adjacent coal supply, and *vice versa*. We find coal and coke in the Guysborough district of Nova Scotia, but there the ore beds are pockety and of small extent. In Central Kentucky and Illinois coal and coke occur in the same locality, but the coal does not coke well. The poorer coals of Kentucky are near very good ores. The good coals of Durham, England, are near the low grade ores of the Middlesbro district. It seems a law that the best of both are furthest apart. Birmingham, Ala., is, perhaps, the district in which the three material elements of pig iron production are most nearly combined in the proportions required for manufacturing under the best conditions.

At the first start the ore and limestone were actually taken out of the same hill and the coal was obtained within a distance of from 6 to 10 miles. But there, again, it was soon found that a little further off the ore was higher in iron and in another direction was a coal that gave a better coke, until to-day the freight cost of assembling is a tangible part of the cost of pig iron. Nevertheless, the distances are not great, but to offset this neither is the percentage of iron in the ore. The whole district will, perhaps, not average over 40 per cent. ore. In the Middlesbro district in England, which is close to the Durham coal fields, the native ore is taken out of the hills overtopping the works, but this ore will not run much over 25 to 30 per cent. before calcining, and does not exceed from 40 to 42 per cent. afterward. I speak of the native ore because a larger part of the ore used at Middlesbro is imported ore, principally from Spain. So that when these matters are brought to your notice do not condemn a steel venture because the raw materials are not grouped together, and do not put all of your money into one which has everything inside the mill fence.

Permissible Cost.

Our next step is the inquiry, "What is the permissible cost of these materials?" The answer is short. The ore and the limestone delivered on cars or boat (as the case may be) at the mine must be "cheap as dirt," and the coal must not be far from the same. This is to be taken literally, not figuratively. In the Mesaba, the Birmingham, the Middlesbro, the Luxemburg and at the Belle Island mines the actual price of mining and putting the ores on cars is less than the traditional contractor's price for removal of earth. It costs more per cubic yard to do the shipping for the ore in the Mesaba range than it does to mine the ore. The limestone should not cost over 25 cents a ton at the quarries. While there is a greater latitude in coal, even this is within narrow limits. In the Connellsville district coal has been mined and put on cars under 40 cents a ton. Now as to the gist of our inquiry: "What are the limits within which these materials must lie?" We can only reach a conclusion by comparison. When we have made this I am hoping that I can convince you that it is 402 miles, or exactly the distance between our Belle Island ore mines and our Sydney coal.

Centers of Cheap Steel.

The cheapest steel centers of the world to-day are the following: In England the Middlesboro district, in Germany the Luxemburg district, in the United States the Central West and Alabama districts. Of these districts the one which overshadows the others is that of the Central West, of which Pittsburgh costs may be taken as the exponent. We will base our comparison on this, and so doing will be on safe ground. So, what is the freight cost of assembling the raw materials in Pittsburgh? Please note we purpose taking actual costs, not market rates. It must be remembered that the haul is partly water, partly rail. It is well to find an equation between the two, and preferable to do so in terms of the rail freight. The actual cost of the lake haul of about 1000 miles is in the neighborhood of 50 cents per ton, or, say, 5-100 cent a mile. The actual cost of the railroad haul can be safely taken at 4-10 cent per ton per mile. We will therefore treat 1000 miles of lake water carriage as equal to 125 miles of railroad carriage. Of necessity this is only closely approximate, for water freight varies largely with distance. The heaviest item in water freight is the lay time of the steamers when loading and unloading. This will be realized when I make the statement that during the open or operating season a lake ore boat is in port about 50 per cent. of her time while operating on an average route 1000 miles long. And this is in a district noted for having every improvement for quick loading and unloading. If the route be a short one the percentage of lay time, and consequently the cost of the freight per ton mile, must largely increase. With these deductions Pittsburgh pays the following freight costs in the assemblage of raw material:

Cost at Pittsburgh.

Ore.—From mines to upper lake port 80 miles railroad freight. From upper to lower lake port, 1000 miles water freight, equal to 125 miles railroad freight. From lower lake port to works, 155 miles railroad freight.

Making a total on 1 ton of ore of 360 railroad miles. It takes 1.70 tons of 60 per cent. ore to make a ton of pig metal. Therefore the latter calls for a total of 612 railroad ton miles.

Coal.—From Connellsville district to Pittsburgh, say, 80 railroad miles. Taking the same quantity of coal, which is the amount that is used, 1.70 tons, gives 136 railroad ton miles.

Limestone.—From the Tyrone district, 130 miles. Say ½ ton limestone per ton of pig equals 65 railroad ton miles. Adding these together we have: Ore, 612 ton miles; coal, 136 ton miles; limestone, 65 ton miles; total, 813 ton miles. At 4-10 cent gives a freight cost of $3.25 per ton of pig iron made. Remember, again, this is freight cost, not the freight charged.

Canada's Advantages.

Now, where does Canada stand in this comparison as a steel manufacturer? If you will take a map and draw a line from British Columbia on the west to St. John's, Newfoundland, on the east, that line will run through four well developed beds of ore of large quantity and of excellent quality, and all of them capable of being mined as cheap as dirt. They are related to the coal as follows:

1. In British Columbia coal beds in the American district not far from Seattle are contiguous, and those of the Crow's Nest Pass on the Canadian side. An assemblage of material is here possible inside of the standard we have taken.

2. On the northern shores of Lake Superior are large and pure beds. Part of these have found their resting place in the hands of our new industrial captain, Mr. Clergue. My expression is awkward. I doubt whether they will rest long either in their own beds or in his hands. This district is full of promise. It has only to bring its coal from the Connellsville or Pittsburgh district, a distance of, say, 210 miles by rail to Lorain or Cleveland. Both ports are equipped with modern coal loading plants. A short water haul equivalent to, say, 80 miles of rail haul will connect with the mines. On this basis 1.70 tons of coal at 290 miles equals 493 miles, which at 4-10 cent per mile gives a freight cost of $1.97, or $1.28 lower than the Pittsburgh standard.

3. In the Ontario district exists ore or great promise, within reasonable distance of the coal of either the Connellsville or Punxsutawney districts. Independently of the local supply is the Canadian lake ore to draw from. This and the coal can be assembled within the Pittsburgh margin. It is unfortunate for this district that there exists an imaginary line called a boundary, the community on either side of which have listened to that song of the devil called the tariff. Our own Government is to be congratulated, however, in that they are not quite as bad as their neighbors. They do let the coke in free, while the States do not let the ore in free. As a result, it is cheaper to assemble and make the pig on the Canadian side.

4. In Belle Island in Newfoundland. Here exists the now well-known Wabana ore. The economical point of its manufacture is at Sydney, directly on the coal beds. The cost of assembly is as follows:

Coal, nothing. Ore, 402 miles sea freight. Owing to the relatively short distance, the lake basis will not apply, as lay time in proportion to sea time will be the heavier. The actual cost will be 40 cents a ton. Limestone, 15 cents a ton. We then have 1.8 tons of 54 per cent. ore at 40 cents, 72 cents; ½ ton limestone, 7½ cents; coal, nothing; total, 79½ cents.

Let us say while passing that this is the lowest assemblage cost in the world for the tonnage under consideration. As against the Pittsburgh cost it represents a saving of $2.45½ per ton.

I have dealt with only four points as typical of what may follow. So far as present indications go, other large supplies are promised; but why go further?

From extreme west to extreme east, point by point, is Canada favored by every natural condition, and the amount in sight is so great that it will last many times our day. We have so far proceeded only to the manufacture. What of the market?

The British Columbia market would command the eastern export markets. These are to-day somewhat limited in tonnage, and of a great assortment in kind, and this condition would have to be catered to. In addition to this a certain zone of contiguous territory, which is rapidly growing up, should form a good home market. It may perhaps be that this opportunity might "bide a wee" without loss, but whether it will or not is doubtful. Already it is throbbing in the hands of the promoters, and may be near fulfillment.

Ontario's Prospect.

The central district, including Ontario, has a home market at its feet, and this means much. Already Canada is entering on her industrial renaissance, and her home market, now modest, is destined to grow by leaps and bounds. Even now the silent mighty tide of emigration is turning our way, bringing in its restless current the energy, pluck and never tiring persistency of our American cousins across the way, bringing the farmer who will call for more plows, the blacksmiths, the carriage builder, the wagon factory, the need of wire fences; in short, the demand for steel. It is well to realize that all the bountiful gifts of this grand heritage of ours are just now shared by over 5,000,000 people, and to picture what it will be when it comes to its own, in the matter of men. The use of steel grows at an increasing ratio with growth of population, and is thus "twice blessed." Only a generation ago the consumption of iron per capita in the States was 34 pounds per annum. Last year it was 150 pounds per capita per annum, and this on the greatly increased population. But even now there is a market waiting for supply, one that stretches from the North Pole to the South, from the east to the west, and it is one where tariffs do not go. I mean the ocean. The central district can take her share of this as represented by the great lakes. She can put a large part of her steel into ship plates, boiler plates and channels, and her pig into triple expansion condensing engines, and so develop her shipbuilding and take her share of a trade even now knocking at the door.

Cape Breton Has Advantage of $6 per ton Over Pittsburgh.

As to the Cape Breton district, situated on the seaboard, the whole wide world is her market—all of it—and in our modesty we do not ask for more. And at this point we must again revert to our cost comparison. We based this on the price at Pittsburgh. To compete for the export business Pittsburgh must get to tidewater. She is now 500 miles from this, and it will cost her $2 to get there. In dealing with the finished steel it must also be remembered that it takes about 1 1-10 tons of pig to make the steel. So taking 1 1-10 tons at $3.25, we have $3.57, to which add $2 freight on steel to seaboard, and we have $5.57, from which deduct Sydney's assemblage cost, 79½ cents, and there is left $4.78 as the net advantage in the cost basis. In actual practice this means more. We should further note that Sydney's tidewater will average about 1000 miles nearer to the world's market than that of Pittsburgh. In all conservatism it would be safe to call the commercial difference all of $6 per ton. In a word, Canada's position as a steel maker is something more than strong. It is simply invulnerable.

I will be pardoned for a few more words on the great promise of the Cape Breton district. So great is this promise that it has ceased to be local. It has ceased to be sectional. It has become international in its influence. To-day Sydney is a familiar name to every steel maker in England, and before another year rolls round the leaders in this industry will have been with us to see for themselves the new center. At this moment Sydney is debated with doubt and misgiving by the large German syndicates, and in the States the strength of her position is conceded by every expert. Canada alone at this moment does not realize how splendid an opportunity is within her control.

False Prophets of Failure.

As is usual in every new venture, Sydney has had her share of the prophets of evil. We are now in operation and are making an excellent quality of pig metal out of nothing except our own Wabana ore and Dominion coal. With the fact of what is doing permit me for a moment to weigh some of the prominent predictions of likely trouble, if not failure. First, we were told that, although Cape Breton coals had coked at Everett, the coke was unfit for blast furnace use. It would not stand the burden. As answer I would state that the third day after our start it was carrying the full burden; it has done so ever since, and will continue to do so indefinitely. We were further told that every one knew that the coals were too high in sulphur. We did not heed much what every one knew. We carefully analyzed the coal. We found it higher than Connellsville, but only slightly so, and we further found that the excess could be economically washed out, and so erected a washing plant. The coal washer not being ready, we determined to start without it, and we did so, making our coke out of plain, every day, unwashed Cape Breton coal. Our flux we knew to be unusually pure, and we felt this was worth something in controlling the sulphur. Our second cast from the furnace put us in control of the sulphur. The fifth cast brought it down to nineteen one-thousandths of 1 per cent. For most purposes it is too low, not too high. In every other ingredient Cape Breton coal equals, if it does not exceed, Connellsville. In ash the unwashed coal gives us a coke with from 6½ to 7½ per cent. ash, as against 10½ to 11 per cent. in the Connellsville; in fixed carbon, from 90¾ to 91 per cent., against 89½ per cent. in the Connellsville. So much for the coal. Now for the ore. The exposed surface ore gives us an average of about 52 per cent. iron, and as high as 11 per cent. silica. Our friends sympathize with us having so much silica to deal with. But the same pure flux which controlled the sulphur took a whack at the silica. The slag is so thoroughly basic that it holds down the silica, and we would not object to having even a little more left in the iron. The phosphorus has been spoken of as too high for basic pig. A few years ago, before the division of open hearth practice into the primary and the finishing furnaces, this might have been true. It is not so today. In England and Germany iron much higher in phosphorus is used, and it is found that the basic slag which results is a valuable by-product and commands a high price as a fertilizer. It is questionable whether we have quite enough phosphorus in our pig to give us this slag; but, if not, it can be cheaply added. For some very special brands of foundry iron the market demands extremely low phosphorous. This we must obtain by the admixture of a neutral ore with the Belle Island ore. This we have found almost at our doors—not in large beds, but as little of it will be needed enough is at our disposal. At Belle Island doubts were developed as to whether we had as much ore as expected. Every test hole put down, every heading driven, has proved the continuity of the ore and its improved quality when under cover.

The existence of the submarine bed is proved and certain. On an extremely calm, smooth day its borders can be traced to a large extent by the naked eye. We have, perhaps, no right to put up our hopes too high, but we should also remember that there is as yet nothing to indicate small limits to this deposit. So, gentlemen, commencing at the west and overlapping, like Belle Island ore, into the sea in the east, do I find promise. West, Central and East each has its proper sphere. There will be profitable room for many more steel works than those which are now projected. The raw material is favorably placed, and another year will convince Canadian capital that the time for doubt has gone. We need no more halting steps, but a stronger, firmer stride. We need no more speculation or hesitation, but a bolder reaching out for the harvest that lays ripening at our feet. It is there; it is ours. We have only to gather it.

At the meeting of the stockholders of the American Steel & Wire Company, Thomas F. Ryan, the only nominee for director of the third class, was duly elected. H. Clay Pierce of St. Louis, for director of the second class, was duly elected. For first class, to serve three years, Alfred Clifford, William P. Palmer, Stewart H. Chisholm, Randall Morgan and P. A. B. Widener were also elected. A resolution was offered by Max Pam to confirm the action of the directors in the purchase of the American Steamship Company for $5,630,000 and that the officers be authorized to carry out the agreement of purchase. The statement was made by Chairman Clifford that the American Steamship Company earned last year over $800,000, net, with only a part of the fleet in operation. The net earnings were at the rate of $1,000,000 for the year. This net is after charging off for repairs, operating expenses and insurance. The ships are now in the best condition, and it is the best line on the lakes.

Iron and Steel Roofing Arrangement.

A report, the correctness of which is widely credited in the trade, points to the practical control by the American Sheet Steel Company of the manufacture of iron and steel roofing in the United States. It is stated that about 90 per cent. of the manufacturers in this line have come to an arrangement with the sheet steel company whereby the latter will manufacture all the roofing required on a large scale in a few centrally located plants, and sell it to the different roofing concerns at a lower cost to them than they could manufacture it.

Each roofing concern in the agreement will retain its individuality and its customers and will sell roofing just as before, but will not manufacture. There is also said to be an iron clad agreement to maintain prices. The alleged contract betwen the metal roofing concerns and the American Sheet Steel Company, it is said, will run for five years. An organization of the manufacturers of galvanized eave trough and conductor pipe on similar lines is also reported to be under way.

The Philadelphia Pneumatic Tool Company.—At the recent annual meeting of the Philadelphia Pneumatic Tool Company, Philadelphia, the Board of Directors was increased from three to six members. The new directors are Thomas Scattergood, Julius Keller and A. L. Phillips. The latter two were brought into the company through the purchase by the Philadelphia Tool Company of the capital stock and the plant of the Keller Tool Company, who have heretofore been manufacturing pneumatic tools exclusively for the Philadelphia Pneumatic Tool Company. This consolidation of the interests of the two companies gives the latter company entire control of the manufacturing as well as of the selling of the product. The same officers were re-elected—viz.: J. W. Tierney, president; R. T. Mickle, vice-president; J. H. Mickle, secretary-treasurer. The Philadelphia Pneumatic Tool Company have recently placed orders for a number of special machine tools for their shops. They have also recently opened an office in Pittsburgh at 1 Wood street, in charge of John K. Henry. Heretofore they have been represented in that city by an agency only. The company expect to open an office in Chicago at an early date. J. Wilbur Tierney, president of the company, sailed for Europe on February 6 to look after foreign connections of the company.

The new continuous heating furnace for the 8 and 9 inch mills of the Milwaukee Works of the Illinois Steel Company has proved such a success that a similar furnace is being built for the light rail mill. When the furnace is completed the mill can be used for rolling either bars or rails. Another furnace of the same kind is to be built for the top and bottom mill.

The Detroit *Journal* says that after April 1 the blast furnace of the Peninsular Iron Company will be the only furnace running in the vicinity of that city, once known as the seat of a flourishing charcoal pig iron industry, and that in a few years in all probability this furnace will also be unable to run because of the scarcity of wood and the increasing cost of charcoal.

The Iron Age

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DAVID WILLIAMS COMPANY, - - - - - - - PUBLISHERS.
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RICHARD R. WILLIAMS, - - - - - - - - HARDWARE EDITOR.
JOHN S. KING, - - - - - - - - - BUSINESS MANAGER.

The Tonnage of Our Exports.

The condition of our export trade in the heavier lines of iron and steel has been the cause of some uneasiness to the trade recently, not alone because its probable serious decline is a matter of some moment, but also because a falling off may react upon our home prices. In other words, if we are to produce as heavily in 1901 as we did in 1900, then our domestic demand must not alone take care of the same tonnage, but must in addition thereto absorb so much tonnage as is represented by the decline in the export trade.

Unfortunately, the Government statistics do not report the tonnage, even of all the heavy lines, while, of course, the quantity of metal which goes out of the country in the form of machinery, hardware and varied products cannot even be guessed at.

For the articles whose weight is given in the statistics, excluding old material, the aggregate tonnage of the exports during 1900 amounted to 808,365 gross tons of finished iron and steel, while the exports of pig iron were 286,783 gross tons. It is probable that the total amount of pig iron which this represents is, say, 1,250,000 gross tons, which does not embrace any cast iron or wrought iron pipe.

Of course, a good deal of material is still going out on old orders, but it is a notorious fact that, for instance in pig iron, there have not alone been no new sales, but that some metal sent abroad in 1900 is being returned to us, or such return is being arranged for. While present conditions last, the pig iron item might as well be entirely dropped. We shipped 107,000 tons of steel billets and 54,885 tons of steel plates, which certainly will be very heavily cut down. We exported 356,245 tons of steel rails, a figure which we cannot very well hope to attain this year. Of structural material our exports were 67,714 tons, which we shall not duplicate in 1901, bridge builders frankly acknowledging that the demand has fallen off. We know that in some branches of the machinery trade a heavy decline in foreign purchases has taken place, and that the markets in Europe are not favorable for an early revival.

The American iron trade must therefore count with a considerable lessening of the exports of iron and steel. Of course, we shall hold our own in many branches and may even expand in some, but the question to be faced is whether the decline is likely to be so large that it will adversely influence the markets of the industry as a whole.

We are inclined to believe that if the falling off amounts to 500,000 tons in all, measured as pig iron, the future will be fully discounted. Now we produced in 1900 in all 13,789,242 gross tons of pig iron, and are now running at a little above that rate. Half a million tons more or less are therefore quite a serious factor, unless our home consumption absorbs such a quantity. There is good reason, from present reports, to assume that it will, because during a large part of last year consumption was hampered by high prices all along the line.

Mr. Carnegie's Retirement.

As an impelling force, and as a great leader in the iron trade of this country, Mr. Carnegie has been without a peer. He has been the incarnation of aggressive progress, and may justly be said to have taught the iron trade of this country and of the world some very important economic truths. Mr. Carnegie has not alone been a believer in the destiny of this country and has expressed that belief in a picturesque and telling way, but he has acted up to that belief. He has been the champion of the economic maxim that full employment is the first consideration for cheap production, that intense use of plant and equipment and rapid replacement are important factors in the same direction, that antiquated machinery must be mercilessly cast aside, that it pays both as to quality and quantity of work to pay liberal wages, that aggressive and intelligent management can only be secured by generous participation in profits, and that errors of judgment, when repeated, meet with the penalty of dismissal.

He has been broad minded enough to surrender previous convictions when conditions withdrew from them their justification. This is illustrated by his complete and rapid changes of base as to the necessity for control of iron ore. On the other hand, he was the first to realize the importance of securing a large interest in the coke industry.

He has been a close student of affairs affecting national concerns, and has taken a very active part in molding public opinion. We need only refer to his unceasing efforts in behalf of the reform of the currency.

Through the retirement of Andrew Carnegie from the active management of the enormous concern whose head he has been, the iron trade loses a leader whose course was closely watched and generally followed. None will with greater sympathetic interest view the development of the noble plans he is now to devote himself to than those identified with the iron industry.

Unrewarded Inventors.

Within a brief period two men have died leaving what appear to be unliquidated claims against society for services of great and permanent value. Their compensation in life was disappointment and poverty. As they were in many respects typical of the class of mechanical geniuses who make great discoveries and stop just short of bringing them to the point of practical value to capital, they are entitled to something more than casual mention in the obituary column.

One of these unrewarded inventors, who may not live in history outside of the engineering text books, was M. Lenoir, the inventor of the gas engine, who recently died in Paris in great poverty. He was granted the first patent on a gas engine in 1860. In 1862 M. Lenoir built an automobile propelled by a gas engine. This stands of record as the first vehicle driven by an internal combustion motor. It did not compress the gas before firing, and as a consequence its efficiency was low. It differed from the more successful Beau de Rochas system, or what is commonly known as the Otto cycle, in the one particular noted. It was, however, the germ of the modern gas engine, and the building of it entitles Lenoir to a place scarcely inferior to that of Watt in the Parthenon of mechanics. He was a careful and conscientious student, and gave his whole life to working out this one problem, convinced that it was of first economic importance. That he profited nothing by his foresight is significant only as showing that the true

inventor has other compensations than those which reward the successful promoter.

So far as can be judged from the indications, the gas engine is the coming motor for fixed power installations depending upon fuel. This is not intended for prophecy. It is merely a judgment based upon the tendencies of current mechanical development. The growth of the gas engine from crude beginnings to very practical forms has been so rapid that only the specialist has been able to follow it understandingly. At the Chicago World's Fair the largest machine of this class exhibited was a motor of only 35 horse-power. As we recall, it was not in any way remarkable. The most that was claimed for it was that, in some positions, it would be more convenient and economical than the steam engine. At the Paris Exposition last year one of the exhibits of greatest interest was a 1000 horse-power gas engine, built at Seraing, to run with blast furnace gas so lean in combustible elements that it is burned with difficulty under a boiler, and after parting with its initial heat will not burn at all. This engine, on tests made by Professor Hubert of Liége, showed itself capable of developing 1 horse-power per hour for an average consumption of 102 cubic feet of gas of a calorific value of only 132 B. T. units per cubic foot. This, we believe, is better than anything the steam engine is capable of after a century of refinement. That the gas engine has a present as well as a future is indicated by the fact that the Berlin-Anhalt, the Körting, the Aschersleben, the Cockerill, the Augsburg and many other Continental works of first importance have undertaken the regular manufacture of large gas engines to be operated with lean gases, chiefly blast furnace gas, while in this country the Westinghouse interests are working in the same direction. Some of the largest steam engine building concerns of Europe are also turning their attention to this type of motor, which seems destined to do a very large part of the world's work during the next quarter of a century. The engine builders have discovered that there is no subtle mystery in the gas engine, but that it is really a very simple construction which will work out and square with every known law of physics. There is a field for the gas engine in sizes between the very small and the very large—say, from 30 to 100 horse-power—which will repay immediate cultivation. They are more economical than steam engines, and will become still more so as they are studied and improved in their minor details.

The newness of the gas engine is perhaps its most surprising feature; that its inventor has just died makes one feel that, in the present age of intense competition, the growth of useful inventions is like that of the mango tree, from seed to fruit in a few minutes, as illustrated in the trick of the Younghi fakirs. That he should have died in poverty is sad, no doubt, but so are many things in the Divine economy.

Still more recently died Prof. Elisha Gray, the inventor of the telephone. A competitor for this high honor gained a victory in the courts, on a technical contention and with the powerful support of corporate organization and capital. The financial rewards, which are understood to have been large, went to another, but Professor Gray will be remembered as the inventor of this valuable addition to the agencies of intercommunication. How much good posthumous fame will do him is a matter of judgment—or, perhaps, sentiment. Gray's own narrative of the first inception of the transmission of sound by current of electricity traversing a conductor is of peculiar interest as showing the method by which ideas are born of the union of close observation and focalized thought: "My nephew was playing with a small induction coil, taking shocks for the amusement of the younger children. He had connected one end of the secondary coil to the zinc lining of the bathtub, which was dry. Holding the other end of the coil in his left hand, he touched the lining of the tub with the right. In making contact his hand would glide along the side for a short distance. At these times I noticed that a sound was produced, proceeding from under the hand at the point of contact, having the same quality and pitch as the vibrating electrome." This observation was the beginning of the speaking telephone.

It is natural, no doubt, to feel a great deal of sympathy for the clever and industrious inventor who benefits the world in large ways without profiting therefrom save in the sense in which all progress ameliorates the conditions of living for all who live. It is a question, however, whether such sympathy is not in great degree wasted—not because the poor inventor does not deserve it, perhaps, but because, if he is a true inventor and not a mere adapter with keen commercial instincts that for which he has least use in life is pecuniary profit. He lives in a more rarefied atmosphere than other men. Success would probably more often spoil than benefit him. He has none of the "instinct of self preservation" which a man needs to make his stewardship of wealth of advantage to himself or to society. If able to pursue the idea which is always materializing and dematerializing just ahead of him, and which seems the one object worth pursuing, he is probably happier than he could possibly be if gifted with the Midas touch of the successful promoter. The best we can wish these richly endowed geniuses is not sordid gains, but the posthumous fame for which any one of them would sacrifice temporary and purely selfish advantage. This belongs to the two men we have mentioned, and we incline to the belief that neither of them would have had it if fortune had smiled more kindly on his business enterprises.

CORRESPONDENCE.

The Rolling of Wire Rods.

To the Editor: The last month of the nineteenth century and the first month of the twentieth century are two red letter months in the history of wire rod rolling.

In December, 1900, the No. 2 rod mill at Joliet produced 9643 gross tons of No. 5 rods in 48 single turns, or an average of 201 gross tons per turn.

In January, 1901, the Rankin rod mill of the American Steel & Wire Company produced 10,230 gross tons of No. 5 rods in 50 single turns, or an average of 204.6 tons per turn.

Both of the above were record breaking months. As few people realize what this means, I will take the liberty of making the following remarks:

As a matter of written history, the Joliet rod mill made the biggest record for making rods in the nineteenth century. As to who will break the record for the twentieth century, what the tonnage will be, and on what mill it will be made is beyond the human knowledge of the present generation, and is a matter of extremely interesting conjecture; but while we cannot look forward and prophesy results with any degree of certainty, we can look back and compare what progress has been made in the past.

Before doing this, however, I will try to show what it means to make, say, an average of 204 gross tons per single turn for a whole month, figuring the working time for each turn to be 11 hours. A tonnage of 204 gross tons in 11 hours means 41,550 pounds per hour, 692 pounds per minute, or 11.5 pounds per second, and a production of 10,230 gross tons in 50 turns means making No. 5 rods at the rate of 100 feet per second continuously for 11 hours each turn for 50 turns, which means at the rate of over 1 mile per minute.

One turn of 204 gross tons of No. 5 rods means a rod of that size 750 miles in length, and the same would reach further than from New York to Detroit. The product of the double turn would reach from New York to Havana, and a week's product of 2500 tons would reach over 9000 miles; so that if we were to drill a hole through Mother Earth, starting at the north pole, we would not only have enough of length of No. 5 rod to reach all the way through to the south pole, but would have about 500 miles at each end to spare to lap around both poles if desired. The month's tonnage of 10,230 gross tons is equal to 37,620 miles, which would circle the globe one and one-half times, would make 205,000 kegs of nails, nearly 15,000 miles of five-strand Glidden barb wire fence, or about 150,000 miles of No. 12 wire.

But has the limit in daily output been reached? It appears not, for the above is based on 204 gross tons per turn, whereas 245 gross tons for a single turn made by the No. 2 rod mill at Joliet is the record, and past history has always shown that in time the record becomes the average.

The Rankin rod mill is of a rather peculiar type. The present design was not one of choice, but one of necessity. It was remodeled from an old styled Garrett rod mill, and was the fourth one to be built, consecutively. This mill has not a continuous roughing train feeding into one or more looping trains, as modern rod mills of the looping type are now built. This was discussed before the change was made, but the space and location would not permit of adopting this style of train. As to how Peter McIlvried, the superintendent of the Rankin plant, solved this problem, this is a matter of history—he having designed a mill which is not only the largest producer of wire rods, but also the most economical as to cost of production. Mr. McIlvried is a Scotch Canadian, and he served part of his time as machinist at the works of the Cleveland Rolling Mill Company (now the American Steel & Wire Company). After his time was up he held a minor position, and the first opportunity he had to show his merits was when he got the position as superintendent of the Rankin Rod & Wire Mill, when he immediately came to the front as the most successful superintendent of the then Consolidated Wire Company. That he alone deserves the credit for the results obtained, so far as designing and constructing this rod mill is concerned, is beyond the least shadow of doubt. It is true that a few outsiders were consulted, but this was only in connection with some minor points, he, like many other Scotchmen, having "a will of his own," and he followed it. He did not cling to the old traditions of rolling mill men in general, who believed that nothing but certain types of engines were of any use for rolling mill purposes. He selected engines of the compound condensing type, from engine builders who had few if any engines in service doing anything like the work required for driving a rod mill. To settle all doubts as to whether his choice was a wise one we need only look at the record of the Rankin mill for the last month, which for engine service is unsurpassed, except, perhaps, by the engines of the "Oregon." But with all this credit due to Mr. McIlvried, still the present management (from the superintendent down to the water boy) deserve considerable credit for the part they took in producing over 10,000 gross tons of wire rods in one month.

It may not be out of place here to compare the progress made in wire rod rolling during the past century.

While Henry Cort, in the year 1783, was the first to use rolls for the purpose of reducing iron, yet few rods were rolled as they are now being rolled previous to 50 years ago, so I will confine myself to my own experience, which is as follows:

About 40 years ago I was employed as roller on a guide mill, on which we sometimes had to roll round bars as small as ¼ inch in diameter, or about No. 3 of the present standard gauge. Two tons of this size on a single turn was considered a fair turn's work. In the year 1870, while in the employ of the Cleveland Rolling Mill Company, at Newburg, Ohio, where they had a small rod mill, we one day made 5 tons. Everbody got cigars. I have heard that on one occasion a banquet was given on the production of 66 tons of No. 4 rods in a single week. In the year 1872 7 tons was considered good work for a single turn, and in 1876 10 tons was about the average; so on until the year 1882, when from 16 to 17 tons was considered good work for a single turn. However, in 1882 (three months after starting the first Garrett rod mill) they averaged over 36 tons for each single turn that month (November), and made 1750 tons, which naturally caused quite a stir in the wire rod industry.

The Cleveland Rolling Mill Company have done more to advance the wire rod industry than any other company in the world, and for years they kept the lead as regards output. They were the first to roll Bessemer steel into wire rods, were the first to use a 4-inch billet for making wire rods, were the first to use repeaters of the Bevis type, were the first to use the McCallup repeater, which has saved many hundreds of thousands of dollars up to the present time in labor alone and is now universally used (and if there is a niche in the hall of fame for rod mill men Mr. McCallup's name should be found there), were the first to roll two rods at the same time and use a double repeater, and no rod mill in this country can be found where some of the employees have not at one time worked on one of the rod mills of the Cleveland Rolling Mill Company, excepting perhaps, those who have worked at the mills of the late Washburn & Moen Wire Company.

In regard to the cost of rolling wire rods from, say, a 4-inch billet, this is less than the cost of converting pig iron into billets, less than converting billets into merchant bars or skelp, and I might not be far wrong were I to say less than the cost to put a steel bloom into a finished rail. While it is impolitic to give figures to prove the above, I have no doubt but what many of your readers will agree that I am correct. In fact I do not know of anything in the shape of steel that can be produced from a 4-inch billet at a less cost than wire rods. In spite of this, in no branch of the steel business is the average man paid higher wages than on a Garrett rod mill. At one time the yearly salary of the head roller on a Garrett mill exceeded that of the Chief Justice of the United States, and, indeed, even to-day some of the rod mill rollers receive a larger salary than many of the perfumed members of the most blue blooded club in New York, who would faint from the least smell of smoke.

I am sure that no one who is at all familiar with this subject will dispute the fact that the men employed on a Garrett rod mill are the highest paid men in the world, so far as the handling of steel is concerned. The cheapest production of an article obtained by the highest wages paid for labor. Is not that a lesson is political economy.

There is no question—despite the natural modesty of the writer—that he has done a great deal toward developing the wire rod industry in this country, mainly in connection with the adoption of methods to increase the daily tonnage, but what has he done to cheapen the cost of tonnage labor on a rod mill, seeing that the wages paid to rod mill men are the highest paid in the country in connection with the manufacture of steel? Is he not open to severe criticism for such extravagance? Has he not displayed poor judgment? He surely must have lacked the backbone necessary to bring about the proper adjustment of wages. I will here state a few facts on this point and leave the public to judge.

Eighteen years ago, just before the starting of the first Garrett rod mill the wages paid to the head rod mill roller on a mill where they started with a small billet, 1⅜ x ⅞ inch, was $5.12 per ton, out of which he paid all the men around the heating furnace (the billets being delivered at the furnace by the company), all the men around the rolls proper, and up to the reeling of the rods. After paying all these men, who were all paid by the ton, he had $2 per ton left for himself. This was the established rate in this country at that time. Directly on the starting of the first Garrett rod mill I paid the roller 50 cents per ton. Surely it required a little backbone to make a reduction of 75 per cent. in one fell swoop. This I claim to be the greatest reduction on record. The next reduction was to 30 cents and the next to 22 cents, the production in the meantime increasing

to such an extent that at 22 cents per ton the roller made more money than when getting 50 cents per ton; and to-day, if the output of last month at the Rankin mill was kept up for a year, less than 10 cents per ton would pay the roller. Here I rest my case.

In conclusion, I do not believe that any branch of the steel industry can show such a remarkable increase in production in a given time as has been made in the manufacture of wire rods. In the year 1876 the average output in 24 hours of wire rods was 20 tons, and at that period the average output on a steel rail mill was about 200 tons per 24 hours. An average of over 400 tons of rods has been produced in the same time, while on rails 2000 tons is a good average for a double turn—in the case of rods from 20 to 400 tons, an increase of 20 times the amount, and in the case of rails from 200 to 2000 tons, or an increase of ten times the amount, all in about 24 years.

What has been developed in connection with the rolling of wire rods within the career of a man? First of all the output has been increased from 10 to 400 tons, and next the size of the billet has been increased from 1⅛ to 8 inches square, both of which were and are rolled direct without reheating into No. 5 wire rods, the latter being done to-day at the Page Woven Wire Fence Company, at Monessen, Pa. There has been a reduction in the rod roller's tonnage wages from $2 to 10 cents per ton, and finally the result shows a rod mill which will produce the cheapest article in the shape of steel, and on which mill the tonnage wages are the highest in the country for labor producing steel.

WILLIAM GARRETT.

CLEVELAND, OHIO, February 16, 1901.

History of Chicago's Building Troubles.

The Metal Worker presents a brief history of the building troubles which have existed in the city of Chicago for more than a year past, the article having been prepared by one having exceptionally good opportunity for obtaining the inside facts in the case:

It is probable that February 5, 1900, will long be remembered by the building contractors of Chicago, as on that day was inaugurated the greatest strike in the building line Chicago and perhaps the world has ever seen, a strike involving nearly 3000 contractors, in every branch of the building line, and 40,000 mechanics directly, and it is safe to say almost as many more who were engaged in the manufacture of material for which there was no demand. On February 6 last, just one year and one day later, the final termination of the great strike was announced by the acceptance of an agreement by the Brotherhood of Carpenters, which was the last of the larger unions to concede that they were beaten and formally surrender to the building contractors. It is now nearly two years since the

Building Contractors' Council.

was formed in Chicago, composed of from two to five delegates from every trade organization in the building line. They formed a compact organization, with a determination to attempt to adjust the many wrongs and abuses they were compelled to tolerate by reason of the different trade unions being affiliated with the central labor organization, known as the Building Trades Council. This organization, powerful by reason of having all the unions in its ranks, by the use of the sympathetic strike was enabled to compel the individual contractor or contractors' association to comply with any demand they might choose to make. Its uniform success in forcing its demands made it power drunk, and the conservative element of the unions was gradually shifted to one side and the unscrupulous and worst element was left in control. This element soon began to use the organization as a means to advance its own personal ends, the result of which was that arbitrary demands were made upon contractors, architects and owners, legitimate unionism was thrown aside and those most active in the ranks of the organization were constantly using its influence for their own selfish ends, financially, socially and politically. Agreements were made with employers and broken at will. Agreements were made up by the unions and the employer was told to sign or get out of business. So powerful was the organization that one year ago not a single apprentice was allowed to learn any trade in the building line in Chicago, and in many unions they made the membership fee so large that it practically barred any man not in the union from working at his trade even if he desired to become a union man. In fact, in one or two instances unions made rules prohibiting the admission of any new men for two or three years.

Cornering the Labor Market.

Having the market cornered on labor they then began the restriction of the use of machinery. In the cut stone union they passed resolutions refusing to work for any contractor who used machinery in his yard, the result being that for two years prior to February 5, 1900, the cut stone contractors of Chicago were compelled to let lay idle and rust in their yards $110,000 worth of machinery. Finding themselves successful in this demand they reached out a little further and next went for the man who was doing too much work in eight hours. They began by restricting the plumber to so many fixtures a day, the gas fitter to so many feet of pipe a day, and the lather to so many bundles of laths a day. In these three lines the capacity of the man was cut down to more than one-half a usual day's work. This was illustrated very forcibly in the plumbing line at the Merchants' Loan Building, where one boss plumber, according to the union rules, did in eight hours' continuous labor four days' work.

The condition of affairs had become such that it was no longer possible for a man to tell after he started a building when it would be finished, as the unions would strike upon the smallest pretense and all hands upon the building would be compelled to quit until the real or fancied grievance was adjusted. The Montgomery Ward Building was over one year in the course of construction and has a record of over 20 sympathetic strikes during that period. Sympathetic strikes were inaugurated upon buildings because the mason spread his mortar with a shovel instead of a small trowel; because the soft stone cutter did hard stone cutters' work; because the carpenter did the iron man's work; because the carpenter sharpened his tools in his own time instead of the boss's; because a boiler was made in a non-union shop; because material was not union made; because the boss hurried his men along; because the gas fitter cut his pipe in the shop instead of on the job; because the employer discharged an incompetent man; because the employer would not put on more men; because the employer would not pay railroad fare out of town; because the employer was late on pay day; because he sometimes paid off in checks, and many other causes so small that none but the most radical would care to notice them. But this organization ruled with an iron hand and to refuse to obey its mandates meant a release from the cares of business in Chicago.

The Beginning of the Strike.

This was the condition of affairs when the Building Contractors' Council was discussing ways and means to advance the building interests of Chicago and restore confidence in that line in the minds of the investor and building public. Chicago, in 1899, constructed about $20,000,000 worth of buildings, when if the conditions were right she should have reached nearer $50,000,000. The contractors resolved to attempt to adjust their grievances with the different trades and tried to arrange for a conference with the Building Trades Council. After much delay that organization finally consented to recognize the contractors' association and appointed a committee to confer with a similar committee from the contractors. After spending ten days in session an agreement was reached and submitted to the two organizations for ratification. The Contractors' Council took immediate action and signed the same. The Building Trades Council after much delay finally admitted they did not propose to sign it and intimated that they were

prepared for a struggle. They fully believed, and past experience was their guide, that the contractors could not hold together and that it would all be over in a few weeks. The battle was then begun; the contractors announced that they would only employ men under their own rules after February 5, and upon the following conditions:

"That there shall be no limitation as to the amount of work a man shall perform during his working day.

"That there shall be no restriction of the use of machinery or tools.

"That there shall be no restriction of the use of any manufactured material except prison-made.

"That no person shall have the right to interfere with the workmen during working hours.

"That the use of apprentices shall not be prohibited.

"That the foreman shall be the agent of the employer.

"That all workmen are at liberty to work for whoever they see fit.

"That employers shall be at liberty to employ and discharge whoever they see fit."

Never in the history of Chicago had such an organization as that of the contractors been formed. Heretofore one organization would fight, and eventually be beaten, but now they were all bound together in a common cause and it was to the interest of all to stick and fight it out to the finish. The union men refused to work under the rules submitted by the contractors and a general strike was immediately inaugurated among all the trades. Work was absolutely stopped in the building line in Chicago, both sides believing that the other would give way in a few days. After waiting several weeks to see what the result would be and not finding any weakness among the unions, the contractors now thoroughly organized and determined to begin operations upon all buildings with help other than that affiliated with the Building Trades Council.

The Industrial Trades Union.

The Industrial Trades Union was organized by a number of non-union men of all trades and they endeavored to supply the demand for labor made by those contractors who were desirious of proceeding with their work. Immediately after resuming with this kind of help a reign of terror was inaugurated by the practically locked-out union men. Non-union men were assaulted on the job and going to and from their work, necessitating the contractors engaging a large force of special police officers to protect the men, the local police on account of politics not giving freely the protection the law said they should give to all citizens following their usual vocations in a lawful manner. Men arrested for committing assaults were let off with a small fine and then the fine was remitted.

'Busses and other conveyances were engaged by the contractors to take the men to and from the jobs, in many instances cots were installed in large buildings and the men quartered there, meals being provided from a neighboring restaurant. Mobs of union men surrounded the various jobs and threatened and beat any non-union men who dared to leave the buildings, following them home at night and trying to intimidate them. Notwithstanding all this the contractors continued with their work, protection being assured the non-union men. The city was flooded with them and all classes of mechanics could be secured, at one time over 6000 of them being at work upon buildings in course of construction. Numerous attempts were made by all kinds of committees and all classes of citizens, from the Mayor down, to get the contractors to recede from their demand that no agreement could be made with a union until it had withdrawn from the Building Trades Council. They were determined that this organization, having been the cause of all the trouble, must cease to exist.

The End Near.

The unions finally permitted their members to go to work under any rules and began to realize that the contractors were determined to win out. Slugging immediately ceased, the police force became more active and few assaults were committed. The bricklayers were the first to give in, they signing an agreement with the Masons' Association in August and their men went back to work. Their withdrawal from the Building Trades Council, numbering over 3000 men, spread consternation in the ranks of the council. They tried hard to recover from the blow, but when the plasterers, plumbers and steam fitters signed with the bosses and withdrew they began to realize that the end was near and since November last they have been falling over one another to get in line. The last organization of any importance left in the council was the carpenters, and now they have come to the conclusion to follow the rest of the trades and help along a revival of the building interests of Chicago.

The Building Trades Council February 5, 1900, had a membership of nearly 40,000 men; to-day there are less than 4000 in it, and it is only a question of a few days when it will permanently disband. The contractors, recognizing the necessity of unions, have insisted upon the associations affiliated with it making agreements with the union of their respective trade. They concede the right of the unions to also have a central organization, but insist that it must be composed of mechanics only and shall not be the present Building Trades Council, and that it shall have no rules that shall conflict in any way with the agreements entered into between organizations. All grievances are to be submitted to a joint board of arbitrators, whose decision is final, and pending which no strike of any kind can be inaugurated.

The scale of wages adopted by the Building Contractors' Council, and which has been incorporated in all agreements, is as follows:

Bricklayers	$4.00	Marble setters	$3.50
Plumbers	4.00	Sheet metal workers	3.40
Stone cutters	4.00	Carpenters	3.40
Gas fitters	4.00	House drainers	3.28
Steam fitters	4.00	Iron workers	3.20
Plasterers	4.00	Painters	3.00
Engineers	4.00	Gravel roofers	3.00
Tile setters	4.00	Plasterers' laborers	2.40
Iron setters	3.60	Laborers	2.00

A Prosperous Outlook.

The final adjustment of the difficulty, which has been disastrous alike to the contractor and the mechanic, is hailed with joy by all. Business men, real estate men, architects and owners all agreed with the contractors during the struggle and are gratified that the building interests of the city will not in the future be jeopardized by the acts of irresponsible men, or hampered by obnoxious rules of labor organizations. In the opinion of many the value of real property will advance and capital be drawn again to the city as the spring approaches. Evidences of an unprecedented season in the building line are seen. Fully 20 large buildings, many of them sky scrapers, are already announced and are being figured, preparatory to beginning operations as soon as the weather permits. In three of the leading architects' offices there are at the present time on the boards or being figured buildings to be erected this year aggregating in value nearly $6,000,000. In 1900 there were constructed in Chicago buildings to the value of $20,000,000. This was during all of the labor troubles, when conditions were such that they would not warrant the careful investor proceeding with much work. The conditions now in the labor market and the reduction in the cost of material lead many of those best qualified to judge to predict that buildings to the value of $50,000,000 will be constructed in Chicago this year.

The contractors intend maintaining their present organization, in order to see that they have no trouble in the future and to see that the agreements are kept by both the associations and the unions. They purpose to provide for a defense fund to meet any exigency that may arise, and there is some talk, on account of the complete victory which they have won in Chicago, of making it a national organization and having councils of a similar character in all the large cities of the country.

The Rheinische Stahlwerke of Ruhrort, Germany, were the lowest bidders on a contract for 7000 tons of rails and 300 tons of fish plates for the Dutch Northeastern Railroad Company at Zwolle. They bid 56.25 florins per ton for the rails and 66.25 florins per ton for the fish plates. The Illinois Steel Company and the Pennsylvania Steel Company were among the bidders.

The Russian Tariff Imbroglio.

An unexpected turn of affairs has developed in the trade relationship between this country and Russia. The Secretary of the Treasury has levied countervailing duties on importations of Russian sugar and the Russian Government have given ample evidence of their intention to retaliate by imposing prohibitory duty on certain important manufactures of iron and steel. American manufacturers feared that the present state of affairs might be precipitated through ignorance of the true state of affairs on the part of the Treasury Department, and they immediately instituted an active campaign against such a possibility. As the Secretary of the Treasury was fully informed of the exact position of the matter by delegations of the manufacturers it was confidently hoped that he would take no action until a thorough official investigation be made. Hence their astonishment when the announcement was made of his decision. The decision which imposes a duty of 146 per cent. against Russian beet sugar is based on the allegation by the Secretary of the Treasury that the Russian sugar sent to this country is favored by a bounty and consequently is subject to the countervailing duty under section 5 of the customs law of the United States dated July 24, 1897, which provides that any sugar imported from a country which pays, directly or indirectly, any bounty or grant upon its exportation shall be subject upon its importation into the United States to an additional duty equal to the net amount of such bounty or grant.

The Russian Government on the other hand has declared officially that no bounty is paid, either directly or indirectly. It is held that when sugar is exported from Russia it is not subject to the usual excise tax, and under certain conditions sugar that has already been sold in the domestic market, and upon which the excise tax has been paid, is allowed a rebate of the excise tax when it is exported. Such payment, however, is merely the refund of a tax that has been paid, and does not constitute any direct or indirect bounty to the refiner, nor is it so intended.

While the Russian representatives diplomatically declare that the duty which is to be enforced on American manufactured goods is not to be considered a reprisal, the trade credit it entirely to retaliatory motives which are fully justified by the action of the Secretary of the American Treasury.

Immediately after the action of the Treasury Department the State Department was officially informed in a note from the Russian Ambassador, Count Cassini, and in a telegram from Charlemagne Tower, United States Ambassador at St. Petersburg, that the Russian Government had imposed a discriminating duty amounting to 30 per cent. additional on American manufactures of iron and steel. The telegram from Ambassador Tower was as follows:

"An order of Russian Finance Minister directs additional tariff of 30 per cent., net, imposed upon articles included in paragraphs numbered 150, 151, 152, 153, 161 and section 2, and discriminating tariff upon American hardware, iron and steel boilers, pipes, forgings, castings, tools, gas and water meters, dynamos and sewing machines, of paragraph 167 of the Russian tariff laws, when such articles are of American manufacture. This includes motors and machinery of all kinds, to take effect March 1."

The paragraphs affected by the decree as it is now understood are as follows, the general tariff, the conventional tariff now enjoyed, and the proposed increased tariff being given in each case:

Equivalents: Pood = 36 pounds; funt = 9 pounds.

150. Cast iron wares:
1. Castings, rough, per pood $0.579
Conventional duty 0.4632
Increased duty 0.6022
2. Vessels of cast iron enamel, per pood 0.772
Conventional duty ..... None.
Increased duty 1.0036
3. Cast iron wares, filed, polished, turned, painted, bronzed, tinned, varnished, enameled (except vessels zinced or coated with other common metals, even combined with wood, copper or its alloys), per pood 1.3124
Conventional duty 1.0808
Increased duty 1.405

151. Manufactures of iron and steel forged, stamped, or stamped, not filed, or filed on the sides and edges only, but not otherwise wrought; forged nails, per pood 1.3124
Conventional duty 1.0808
Increased duty 1.405

152. Iron and steel boiler work, such as boilers, reservoirs, tanks, cases, bridges, pipes, as well as all articles of sheet iron or steel, not specially mentioned, per pood 1.3124
Conventional duty 1.0804
Increased duty 1.405

153. Manufactures of iron and steel not specially mentioned, shaped, turned, polished, bronzed, or otherwise worked, combined or not with wood, copper or its alloys, weighing:
1. More than 5 funts each, per pood 1.3134
Conventional duty 1.0808
Increased duty 1.405
2. 5 funts or less, per capita 2.0808
Conventional duty 1.6984
Increased duty 2.2078
3. Padlocks and other locks, except those of copper, also wood screws, per pood 3.088
Conventional duty ..... None.
Increased duty 4.0144

NOTE.—All iron or steel fittings and trimmings employed in buildings and in the manufacture of furniture are dutiable according to the corresponding paragraphs of No. 153, provided such articles be not specially mentioned in numbers of the tariff with a higher duty. Thus, articles nickeled cannot be classed in a tariff number subject to a higher duty. Metallic parts of sporting guns are dutiable according to the component material. . . . Wooden choppers with steel blades are dutiable according to No. 153, and the apparatus called "Economizer," for feeding boilers with hot water, pays duty according to the component material. Frying pans of sheet iron, wrought, are dutiable according to the corresponding paragraphs of this number. Small wringing machines of polished woods, with metallic parts, partly bronzed, are classed in No. 153. Metallic clasps with locks for bags, valises, &c., are comprised in Section 3, No. 153. Iron bedsteads with bottoms of iron wire coated with common metal are dutiable according to No. 153. . . . Iron conducts for water and gas, zinced; telegraph insulators composed of iron hooks and porcelain head, &c., are likewise included in this number.

161. Tools, for use of artists, trades, factories and workshops, including separate metal parts, per pood ... 1.0808
Conventional duty 0.8492
Increased duty 1.1039

NOTE.—The following goods shall be included in this number: Agate hooks used by jewelers; tape measures, winding; metallic pencils (metal points cased in wood) for engravers; garden shears; screws and monkey wrenches of all kinds; steel shears for cutting metals; thimbles of common metals and their alloys, neither gilt nor silvered; special shears for tailors, and thimbles of aluminum.

167. Machinery, apparatus and models thereof, complete or in parts, adjusted or not:
2. Gas and water meters; motors worked by gas, hot air or petroleum; dynamos; sewing and knitting machines; portable engines (except engines imported with thrashers), &c.; tenders; fire engines (except steam fire engines); machines of all kinds not specially mentioned, of cast iron, or of steel, with or without parts of other materials 1.3124
Conventional duty 1.0808
Increased duty 1.405

It was said at the Treasury Department that a ship with a cargo of sugar from Russia would arrive in New York in a few days, and that the importers would, of course, appeal from the assessment on the cargo of the discriminating duty, thus leaving the Board of General Appraisers to determine whether the Secretary of the Treasury was justified in declaring that Russia paid an export bounty and directing the imposition of a discriminating duty equal to the amount of that bounty.

The Circuit Court of Appeals decided February 8 that the Board of General Appraisers had jurisdiction in cases arising from the imposition of discriminating duties, and thus the simplest and most direct way of disposing of the disputed question is afforded.

This is looked upon in the trade as a most unsatisfactory method of disposing of the matter, as, even though after months of dispute the Supreme Court should finally uphold the manufacturers and overthrow the decision of the Secretary of the Treasury, the matter would be but at the position it held prior to his decision. In the meantime it is felt that irreparable damage could be wrought with our Russian trade. The lines upon which the manufacturers are now directing their efforts look for the early passage of the commercial treaty between Russia and the United States, which is now in process of formation and which will not only rescind the recent action of the Secretary of the Treasury, but will afford still better

commercial relations between the two countries. The present status of this matter is outlined in the fourth paragraph of the letter which Vice-President W. L. Saunders of the Ingersoll-Sergeant Drill Company has sent to the Secretary of the Treasury, and which follows:

"NEW YORK, February 18, 1901.

"*Hon. Lyman J. Gage, Secretary of the Treasury, Washington, D. C.:*

"*Dear Sir:* The exalted position which you occupy as the representative of this administration and a servant of the people acting in a matter of great importance to the business interests of this country is my excuse for addressing you.

"You knew when you ordered that the countervailing duty be reimposed on sugar imported from Russia that the Russian Government had officially stated that no bounty was paid. You knew that Russian sugar was taxed an import duty of about 100 per cent. and that American products were admitted to Russia free of duty in Siberian ports and at minimum rates elsewhere.

"You knew that the value of Russian sugar imported to the United States was $340,815 in 1899 and $22,993 in 1900, and that Russian imports from this country in 1900 were valued at $10,029,793.

"You knew that a commercial treaty between Russia and the United States, by the terms of which great and valuable tariff concessions were made to American manufacturers, was pending in the State Department, and that the administration which you represent had, through its authorized agent, committed itself to this proposed treaty, and that, after it had been approved by the Russian Cabinet, further action had been postponed pending the recent elections.

"You knew that to impose any additional duty on Russian sugar would seriously embarrass these negotiations, and that in such an event the Russian Government had committed itself to a policy of retaliation.

"You knew that American manufacturers, through the National Association and by individual effort, urged delay and investigation of the facts lest the gates of this valuable market be closed.

"You knew that no countervailing duty could be justly imposed unless the facts showed that a bounty was paid, and I quote your own words in saying that 'the facts are very much involved.'

"You told me in your office that no one representing this Government had gone into Russia to investigate the facts, that the whole question was one of facts and law, that no one need be alarmed, as 'ample warning would be given,' that you would consider a brief from the manufacturers on the subject and that there was 'plenty of time,' that you would give serious attention to the suggestion which I made that the questions of fact be investigated by a commission, that you realized the seriousness of the situation and did not like the responsibility which bore upon you. This conversation took place only a few days before you issued a revolutionary order imposing the countervailing duty.

"Your excuse appears to be that you have discovered that the question can be reviewed by the courts.

"But the mischief has been done, and you, sir, are responsible for it. Knowing your high reputation, I cannot believe that we have been deceived; hence, the conviction forces itself upon us that you have suddenly shifted to a course which enables you to evade a great responsibility. When a wise man does not know what to do he does nothing. We only asked you for delay until the atmosphere of doubt could be cleared by the truth.

"By this act you have placed a brake upon the wheels of commerce, which are now going round at a rate of speed which has astonished the world. Do you forget the record of the past? Overproduction is sure to reap the disease of congestion and ruin unless doors are opened to distant ports. You have shut these doors with a bang. You have rejected the hand of Russia, which was extended in friendship, and it is now raised against us.

"At whose bidding has this precipitate step been taken? Is this sugar infant so helpless that our manufacturing interests must be sacrificed to give it life? Is our emblem of liberty to face the world a Laocoon in the toils of a serpent trust?

"I am, dear sir, with great respect,

"Yours,

[Signed.] "W. L. SAUNDERS."

Numerous similar communications have been forwarded to the Secretary by prominent manufacturers, and in reply to them he has sent the following:

In reply to your letter relative to countervailing duty on Russian sugars, I have to inform you that after careful consideration of the effects of the Russian law and regulations upon the price of that commodity for home consumption and the price for exportation, as exemplified in reports from our consular officers in Russia, this Department has arrived at the conclusion that Russia indirectly pays or bestows a bounty on the export of sugars within the meaning of section 5 of the act of July 24, 1897, and consequently that it was my duty under the law to proclaim the net amounts of such bounties for the assessment of additional duties, which was done by the Department's circular No. 10 of February 14, 1901.

It is to be regretted that the Russian Minister of Finance should have considered this action in the light of a discrimination on our part against the Russian commerce, as stated in our recent daily press, and have withdrawn from our imports into Russia the privileges of the conventional tariff of that country, to which the United States is entitled under "the most favored nation clause" in our treaty of commerce and navigation with Russia of 1832.

The allegation of discrimination appears to be unfounded in view of the fact that sugars coming from other bounty paying countries, such as France, Germany, Belgium, the Netherlands, &c., are subjected to additional duties under said Section 5, and that unless the above stated conclusion of this Department is reversed by a competent tribunal the exemption of Russian sugars from additional duty would rightly be regarded by the other bounty paying countries as a discrimination against them and in favor of Russia.

It is hoped that upon a proper presentation of the matter to the Russian Government by our Department of State, the reputed order of the Russian Minister of Finance will be revoked.

The United States Tube Company.—Ground has been broken for the construction of the plant which the United States Tube Company are about to erect on the 11-acre tract of land recently purchased in Buffalo. This first building will be 300 feet long, 84 feet wide and 32 feet high, there being but a single story in this hight. In all there will be ten buildings, all so nearly alike that to describe the dimensions of one is to tell the size of the others. It is expected that the first building will be completed in three months, and that it will have an output capacity of 125 tons of tubes a day. The United States Tube Company have a capital of $1,000,000. The president is Harvey K. Flagler, while Charles H. Twist is vice-president. Both the president and vice-president are practical men in the tube plant and rolling mill field. Mr. Flagler has built the Syracuse, Catasauqua and Tyler tube mills.

The Forter-Miller Engineering Company, Westinghouse Building, Pittsburgh, Pa., have secured the contract for the erection of a complete pipe coating plant for the American Circular Loom Company, at New Orange, N. J.

The Camp Engineering Company, dealers in second hand machinery, 18 and 20 South Canal street, Chicago, are arranging to remove from their present location about May 1. The place is too small for their present business, and they are forced to get into a larger building. They are receiving many inquiries, and among these is one for engines aggregating 25,000 horse-power.

The United Gas & Coke Company are now building 100 Otto Hoffman by-product ovens at Camden, N. J.; 252 at Lebanon, Pa., and 564 at Buffalo, N. Y.

The Great Consolidation.

No official statement has yet been issued by J. P. Morgan & Co. relative to the consolidation of iron and steel interests. Negotiations have been actively conducted during the week by a very limited number of men, conspicuous among whom have been C. M. Schwab, Judge Gary, John W. Gates, and Judge Moore. So closely have the different steps been guarded that not even the presidents of a number of the large concerns, be they Morgan enterprises or not, have been cognizant of their status.

It is stated that probably no announcement will be made before Thursday afternoon, if then, the idea being that the business community in that case will have the holidays to digest the features of the plan, if it should be ready for issue.

There are indications that a number of the details have undergone changes from day to day.

Some doubt has been thrown relative to the accuracy of some of the details which we submitted last week. It is not deemed likely that the Rockefeller ore and transportation interests will be absorbed, although they are expected to act in harmony with the consolidation. It is doubtful, too, whether the American Bridge Company will appear in the first organization.

The negotiations with the wire interests are regarded as practically closed, but dickering is still going on with the Moore interests, although an ultimatum is said to have been presented.

As for the financial details, gossip has been active. The capitalization is placed at $400,000,000 each of common and 7 per cent. preferred stock, a blanket mortgage of $300,000,000 of 5 per cent. gold bonds underlying the whole. The underwriters are to have their money tied up for 15 months, Mr. Morgan having the option of tendering at the close of that time 125 per cent. in cash or turning over the securities.

Report has it that C. M. Schwab is to be the president of the new corporation, while Henry C. Frick is to be the chairman of the Board of Directors.

The point is made, in regard to the management of the new consolidation, that each one of the constituent concerns enters with a pretty thoroughly balanced organization, the result of the adjustments and of the weeding out processes which have gone on in each of them during the year or years since the aggregations were formed.

It is understood that the new securities will be introduced in the London market, where there have been considerable transactions for some time past in the issues of the American Bridge Company, one of the Morgan consolidations.

OBITUARY.

CHARLES F. DE VELASCO.

Charles F. de Velasco, the New England representative of the National Tube Company, died at his home, Storey place, Jamaica Plain, February 12, after several weeks' illness, from a complication of diseases. He was well known to the iron and steel trade throughout New England, having been identified with the National and American Tube companies for 31 years. Mr. de Velasco was born at Cold Springs, N. Y., May 23, 1851, and was educated at Poughkeepsie, N. Y. He came to Boston in 1869, entering the employ of the National Tube Works Company, then located in East Boston. He resided in East Boston for a number of years, moving thence to Jamaica Plain, where he had lived for the past 14 years.

NOTES.

COL. JOHN J. VINTON, who was for many years engaged in the iron manufacturing business in Youngstown, Ohio, and a veteran of the Civil War, died on February 5 at his home, at Findlay, Ohio, aged 80 years. He was born in South Wales and came to this country when 21 years of age.

THOMAS WREN died at Pottsville, Pa., on February 15, at the age of 78 years. He was a native of Glasgow, Scotland. Many years ago he established the Eagle Foundry at Pottsville, and in 1850 founded the Washington Iron Works in the same town. Mr. Wren was also interested in mining and in banking enterprises.

HENRY B. TATHAM, JR., a member of the firm of Tatham Brothers, sheet lead manufacturers of Philadelphia, died in that city February 12 after a brief illness. He was born in Philadelphia 54 years ago, and at an early age entered the firm which had been established in 1840 by his father and three uncles.

JAMES M. JOHNSON, secretary of the Raymond Bros.' Impact Pulverizer Company, Chicago, connected with the company since 1894, died on the 14th inst. from injuries received by being struck by a wagon when crossing a street. He was 74 years old.

GEORGE W. HOWELL, a well-known civil engineer, died on February 15 from pneumonia at his home in Morristown, N. J., aged 65 years. Mr. Howell was actively engaged in the location and construction of railroads, bridge engineering, water supply construction and drainage and sewerage during the past 40 years. He was a member of the American Society of Civil Engineers and an ex-president of the New Jersey Sanitary Association.

E. C. DARLEY, Western sales agent of the Cahall Boiler Company, died at the Chicago Beach Hotel, Chicago, on the 16th inst. He had been suffering from an affection of the throat, and died when an anæsthetic was administered, preliminary to an operation, the anæsthetic affecting his heart. Mr. Darley was widely known among engineers, and was highly esteemed for his sterling qualities and his unfailing good nature. He was a prominent member of the Technical Club of Chicago, and was treasurer of that organization at the time of his death. He was 55 years old, and was born in New Castle, Pa. He leaves a widow and a son, the latter being assistant manager of the Cahall Company at Pittsburgh.

CLIFTON C. WEBSTER of the firm of C. C. Webster & Co., dealers in scrap iron and metals, Worcester, Mass., died on February 12 at his home in that city, aged 40 years.

PATRICK FLOOD, superintendent of the Central Union Brass Foundry, St. Louis, Mo., died on February 5 of heart disease. Mr. Flood was a well-known figure in the local foundry trade of St. Louis.

HORACE SILSBY of Seneca Falls, N. Y., vice-president of the American Fire Engine Company, died February 5, at Seneca Falls, from pulmonary disease, aged 61 years. He was born at Seneca Falls and was the eldest son of H. C. Silsby, founder of the Silsby Steam Fire Engine Works, which he organized nearly 50 years ago. From his youth Horace Silsby had been connected with the concern, and since the consolidation of the various fire engine concerns under the name of the American Fire Engine Company he had been vice-president of that corporation and manager of the Seneca Falls plant. Mr. Silsby served with distinction in the Civil War.

Information Wanted.—A correspondent wishes the address of E. L. C. Schulz, manufacturer of glazing and rolling machines.

At Pittsburgh suit has been entered by Major George M. Laughlin, acting for Jones & Laughlins, Limited, against the Pittsburgh & Lake Erie Railroad to settle a dispute regarding rates and other matters in connection with the Monongahela Connecting Railroad, which is owned by Jones & Laughlins, Limited. The suit is understood to have grown out of the proportion that Jones & Laughlins, Limited, should take out of the Trunk line rates and the two interests have been unable to adjust the dispute outside of the courts.

The Queen & Crescent route has issued a new rate sheet with the following figures from the Birmingham district: Chicago, $3.65; Columbus, Ohio, $3.45; Duluth, Minn., $5.75; Indianapolis, $3.25; Milwaukee, $4.05; Richmond, Va., for export, $2.71, and St. Paul, $5.35.

MANUFACTURING.

Iron and Steel.

The 13-inch continuous mill in the American Iron & Steel Works of Jones & Laughlins, Limited, on the South Side, Pittsburgh, running on 1½ x ½ inch flats, made 170 tons during a 12-hour turn lately. The 10-inch mill, which is being run on three eight-hour shifts, is also making large records. It is stated that only 60 hands are employed in this mill, of which only 15 are skilled men.

The Sharon Tin Plate Company, Sharon, Pa., have given a contract for the erection of 50 dwelling houses to be used by employees of their new tin mills.

At Pittsburgh the formal transfer of the property to be used as a site for the new open hearth steel plant of the St. Clair Steel Company, at Blair, in the Monongahela Valley, near Pittsburgh, was filed for record last week. The land consists of three tracts containing 31½ acres, 15½ acres and 64 2-10 acres, respectively. The land was bought from H. C. Frick by the St. Clair Steel Company for $557,190. As noted in these columns last week, the St. Clair Steel Company, which is a subsidiary company of the Crucible Steel Company of America, will build 12 50-ton open hearth furnaces, blooming and slabbing mills.

The old officers and Board of Directors of the Maryland Steel Company were re-elected at the annual meeting of the stockholders of the company held last week at Sparrow's Point, Md. The officers are: President, F. W. Wood; secretary and treasurer, Edmund N. Smith. Board of Directors: F. W. Wood, R. K. Wood, E. C. Felton, L. S. Bent and W. S. Franklin.

Announcement is made that the American Tin Plate Company will continue to operate the plant recently acquired by them at Muskegon, Mich., having secured desired concessions in freight rates on raw material and finished products. About 600 men are employed at this plant.

The Carnegie Steel Company have decided to build a "double storage" mill of the Morgan type at the Duquesne Steel Works. Paul B. Morgan, of the Morgan Construction Company, Worcester, Mass., was in Pittsburgh last week making final arrangements for the new mill.

The Allegheny Steel & Iron Company, which concern are building a new sheet plant at Tarentum, near Pittsburgh, are pushing work on the new buildings as fast as possible. The company will install two new gas engines for electric lighting purposes, one of 150 and the other 100 horse-power. The larger sized engine will probably be a second-hand one.

The voluntary advance of 5 per cent. which the Titusville Iron Company of Titusville, Pa., gave their employees took effect on February 9, and affects 230 men. This firm have just completed an addition to their boiler department, consisting of a brick and iron structure 72 x 185 feet. They have recently installed a new set of bending rolls, 20 feet long, two additional punches, slitting shears and large planer. The new boiler shop is equipped with an electric traveling crane.

The Stark Rolling Mill, Canton, Ohio, have been organized with a capital stock of $300,000. The company will erect a plant at once to cost about $200,000.

The Harrow Spring Company, Kalamazoo, Mich., have started a merchant rolling mill.

No. 10 Furnace, at Hellertown, of the Thomas Iron Company, Easton, Pa., was put in blast on the 15th inst., after an idleness of some months.

The shipping department and store room, including the entire stock of bolts of all kinds, of the Buffalo Bolt Company, at North Tonawanda, N. Y., were entirely destroyed by fire on the 14th inst. The company expect to be able to resume shipments by the middle of March.

The scheme for building a rolling mill at Des Moines, Iowa, is being promoted by Thomas Croft under the auspices of the Des Moines Commercial Exchange.

The Newport Rolling Mill Company, Newport, Ky., are building a new billet mill and three new warehouses. They are also contracting for a new four-sheet mill addition to their plant.

W. C. Freeman, Edward C. Freeman, Isabel C. Freeman and Margaret C. Freeman, owners of the iron interests at Cornwall, Pa., including the Cornwall Furnaces, now being operated by the Lackawanna Iron & Steel Company of Scranton, have announced a public sale of the property, to take place on March 9.

The Standard seamless tube mill at Ellwood City, Pa., lately bought by the National Tube Company, has increased its number of employees one-half during the last two weeks. R. T. Brown and R. C. Stiefel, the former managers of the mill, will continue under the new management.

White, Dixon & Co., who have for the past five years been operating Bear Spring Furnace, Tenn., will blow out the last of this month. March 1 their lease expires, and they will be succeeded by the Dover Iron Company, a new company composed of J. H. Lory of Bear Spring and some Louisville gentlemen, who propose to put the furnace in blast about March 15 on cold blast iron as heretofore.

The Bethlehem Boiler Works, at South Bethlehem, Pa., owned and operated by McDermott Bros., were on the 11th inst. destroyed by fire. The loss in machinery is about $7500, partially covered by insurance. A contract has already been closed for one of the largest works in that section, and it is expected that the new plant will be in operation within 40 days.

The New England Bolt & Nut Company, 253-257 Atlantic avenue, Boston, Mass., are building a one-story shop, 185 x 125 feet, and a galvanizing room, 60 x 30 feet, at Everett. The company make carpenters' iron work for buildings, bridges, &c., and were forced to enlarge their plant by increased business.

The Anderson Tool Company, Anderson, Ind., builders of electrically driven machine tools and arc lamps, have organized with a paid in capital of $50,000 and will acquire the business of the Lea-Hooven Mfg. Company and the Anderson Tool Company.

The Ludlow Valve Company, at South Troy, N. Y., will, as soon as the weather permits, build an extension about 16 x 67 feet to their core room.

The Oneida Steel Pulley Company, Oneida, N. Y., who recently acquired the capital stock of the Fulton Pulley Company at Fulton, at a recent meeting decided to increase the capital stock from $75,000 to $125,000. The company manufacture steel and wood pulleys, and will in the near future add friction clutches and compression couplings and will carry a stock of hangers and shafting so that they will be prepared to fit out an entire plant with its power transmission. The officers are: John Maxwell, president; N. G. Stark, vice-president; E. T. Shepard, secretary and manager; R. B. Downing, treasurer.

Machinery.

The Sullivan Machinery Company, Chicago, manufacturers of mining machinery, have purchased the business and plant of the M. C. Bullock Mfg. Company of the same city, taking possession on the 1st inst. This is an important acquisition, as the Bullock Company have had a high reputation for the quality of their products.

P. McGarry, manufacturer of boilers, 1166 South Ashland avenue, Chicago, has been awarded a large contract for boiler and tank work by the El Reno Ice & Coal Company, El Reno, Okla. The specifications call for two 125 horse-power boilers: one tank, 10 x 5 x 6 feet; one tank, 68½ x 2½ feet by 42 inches, and another tank, 13 x 5 x 7 feet; also an iron stack 75 feet high, 10 feet at the base, and tapering to 5 feet at the top, to be supported on I-beams and columns. The order is taken subject to the inspection of the Hartford Insurance Company. The same firm also received a contract for furnishing the water works of St. Mary's Academy, Notre Dame, Ind., with a tower 13 feet in diameter and 52 feet high, with cresting and cornices. They report a steadily increasing business since their removal into their new factory last September, and they are now preparing to install new equipment, consisting of air hoists, drills, flanging and general boiler making machines.

Rubel & Co., 82 Lake street, Chicago, manufacturers of the Lily stoves, ranges and furnaces, have gone into the manufacture of motors for automobiles.

The Steel Ball Company, Claremont and Austin avenues, Chicago, the only steel ball bearing makers west of Cleveland, will engage in the manufacture of automobiles, run by a new motor which has been invented by W. B. Hill.

The Van Dorn-Elliott Electrical Company of Cleveland have been incorporated by J. H. Van Dorn, H. H. Hodell, F. Schneider, W. A. Dutton and W. H. Elliott. Capital stock, $50,000. The new company take over the electrical repair, armature winding and manufacturing business heretofore carried on by Van Dorn & Dutton, also the electrical repair business carried on by W. H. Elliott of that city. The gear manufacturing business carried on by Van Dorn & Dutton will be continued as heretofore under the old name. The new company will occupy a portion of the Van Dorn & Dutton plant. The officers of the company have not yet been elected, but J. H. Van Dorn will be president.

Nelson & Kreuter, manufacturers of laundry machinery, Chicago, report that business is increasing. Since their removal into the new building at 955 to 975 Spaulding avenue their trade has increased materially, and they have lately installed a number of large machine tools.

The Motsinger Device Mfg. Company, Pendleton, Ind., who are marketing the "autosparker" for gas and gasoline engines and other automatic devices, write that their autosparker is gaining reputation not only in this, but foreign countries as well. Extensive shipments having been recently made to all of the principal countries of Europe. In fact, the demand from abroad has become so great N. H. Motsinger, president of the company, sailed for Europe on the 19th to look after the company's interests there.

The Athens Foundry & Machine Works, Athens, Ga., who recently organized, have taken over the plant of the old Athens Foundry & Machine Works. Some new machinery will be installed, and the plant otherwise equipped for the manufacture of gear blanks, cut gears, &c., mill work, making and repairing &c. The works will be put in operation as soon as possible.

The officers are John R. White, president; J. R. Honchin, mechanic; J. A. Morton, general manager.

The new boiler shop of the Geiser Mfg. Company of Waynesboro, Pa., builders of road locomotives, portable and stationary engines, &c., is about completed and ready for occupancy. The building is of brick and structural iron, and is equipped with immense hydraulic flanging and riveting machines and all other modern machinery necessary to make an up to date boiler shop. The completion of the shop fills a long felt want, and will mean a largely increased output of engines. The works of this big factory have been running day and night for months in order to meet the immense demand for their line of machinery. We also learn that the company are building another big warehouse in the Northwest, this time in Minneapolis, and are getting out plans for still a much larger one at Kansas City.

The Hooker Steam Pump Company, St. Louis, have entered into an arrangement with the Reliance Machine & Tool Company, St. Louis, for the manufacture hereafter of the Hooker steam pumps. The two concerns are putting in an equipment of the latest machine tools especially adapted for pump construction. The capacity for turning out their product will be largely increased.

The Eastern Tube Company, Dallmeyer Block, Pittsburgh, which concern are going to build a tube mill at Zanesville, Ohio, have given an order to the Atlas Engine Works, Indianapolis, for six 500 horse-power Atlas heavy duty engines, built especially for rolling mill and other heavy work. Also a 150 horse-power Standard engine, and one automatic engine for direct connection with a 150 kw. generator. The Atlas Engine Works are installing in the plant of the Kittanning Plate Glass Company, Kittanning, Pa., 20 pairs of vertical engines, each of 200 horse-power, that will be used for running the grinding and polishing machine.

The Warwick Machine Company, Newport News, Va., manufacture an automatic ice can filler, for which they have a good home and foreign demand. They give considerable attention to marine repair work, and were kept very busy in it the whole of last year and up to the present time.

The Lakeport Mfg. Company, Lakeport, N. H., who recently incorporated, have taken up an existing plant for the purpose of manufacturing marine and stationary gasoline engines. The officers are B. F. Drake, president; G. H. Saltmarsh, vice-president; T. E. Prescott, treasurer; J. W. Parker, superintendent.

The Best Mfg. Company of Pittsburgh, brass and iron founders, pipe fitters and machinists, and makers of Best gate valves for high and low pressure, have leased the plant of the W. J. Carlin Company of Pittsburgh, which is adjacent to their present works, and are installing in it a large amount of new machinery. The growth of the business of the Best Mfg. Company made it absolutely necessary for them to increase their capacity for the manufacture of their various products.

Owing to the leasing of their plant to the Best Mfg. Company the W. J. Carlin Company of Pittsburgh are erecting a new steel building adjoining the present one at Twenty-fifth street and Allegheny Valley Railway. It is 200 feet long and 109 feet wide, and will be completed about April 1. The concern will make contractors' and yard engines, and at the present time are working on an order for 20 double vertical engines of 200 horse-power capacity for the Kittanning Plate Glass Company. The engines are of an entirely new type, and are buildt to undergo a large amount of hard work and usage.

The Ohio Cultivator Company, at Belleville, Ohio, will enlarge their capacity. The firm have placed orders for a good deal of new machinery.

Keller & Gano, who recently purchased the works of the Mercer Machine Company, at Bowling Green, Ohio, have taken possession of the plant, and are completely overhauling it before putting it in operation.

The Parkersburg Iron & Steel Company, with offices in the Empire Building, in Pittsburgh, who are erecting a four-mill sheet plant at Parkersburg, W. Va., have placed a contract with the Bass Foundry & Machine Company for two engines to drive these mills. The Parkersburg Iron & Steel Company will probably let this week the contract for the boilers and engines for electric lighting purposes.

The Niles Boiler Company, Niles, Ohio, have closed contracts for 125 horse-power engine, a 100 horse-power generator and seven electric motors, together with two 100 horse-power boilers, which will be at once installed in a new power house. Five hundred feet of additional railroad switches will be laid, and bids for additional buildings, which will nearly double the size of the present plant, will be asked for in a few days.

The Macomber & Whyte Rope Company, manufacturers of wire rope, Chicago, have leased for a term of 99 years the whole building located at 19 and 21 South Canal street, which they have heretofore occupied in part. The building, which is three stories high, is being remodeled especially to accommodate the company's business, and they will now occupy the whole first floor as offices and warehouse. The property leased is 40 feet wide and 150 feet long, and they expect within a reasonable time to erect a six-story building on it, part of which will be occupied by them and part rented.

The Lloyd-Booth Company, Youngstown, Ohio, manufacturers of rolling mill and steel works machinery, sand and chilled rolls, contemplate building an addition to their erecting shop, as well as increasing their foundry capacity about one-third.

Kearney & Trecker, manufacturers of milling machines, at Lake and Clinton streets, Milwaukee, Wis., are arranging to remove to the Northwestern part of the city, along the St. Paul Railroad, to secure more room. Real estate owners in that locality have offered the firm a bonus of $10,000 to remove, stipulating that a site should be purchased by March 1, and the work of building a shop should begin not later than March 15. The shop to be built first is to be 100 x 200 feet.

Haring & Bogert have purchased the machine shop and business of Knapp & Son, at 196 State street, Binghamton, N. Y. The new firm will operate a brass foundry in connection with their machine shop, and will make a specialty of brass, bronze and aluminum castings. New tools will be added and the plant otherwise improved for the quick handling of their work.

The Automobile & Cycle Parts Company, Cleveland, Ohio, whose incorporation was mentioned in a recent issue, have announced that several factories they have taken over have been consolidated and that in the future the plants will be conducted as divisions of the Automobile & Supply Company, as follows: Garford Saddle Factory, Elyria, Ohio; Hunt Saddle Factory, Westboro, Mass.; Smith Stampings Factory, Milwaukee, Wis.; Thompson Stampings Factory, Chicago; Diamond Chain Factory, Indianapolis; Cleveland Ball and Pedal Factory, Cleveland; Sheet Steel Mill, South Chicago. Each department will be conducted as a separate organization in charge of a sales manager and superintendent. These officials have not yet been fully decided upon, but among them will probably be the following: J. A. Hunt in charge of golf goods, Hunt factory, Westboro, Mass.; C. B. Tewksbury, manager Hunt factory, saddle department, Westboro, Mass.; James Smith, factory manager, Elyria, Ohio; Heman Ely, general sales manager of saddle department, Elyria, Ohio; A. O. Smith, factory manager, Smith stampings plant, Milwaukee; L. M. Wainwright, factory and sales manager, Diamond chain factory, Indianapolis; W. L. Colt, factory and sales manager, ball and pedal factory, Cleveland; George L. Thompson, factory and sales manager, Thompson stampings plant, Chicago; D. B. Warwick, superintendent and sales manager, Hart & Cooley steel mill, South Chicago. W. L. Colt will be general head of the sales departments and Samuel Leonard will be head of the purchasing department, both at the Cleveland offices.

The Iowa Iron Works Company, Dubuque, Iowa, have incorporated with a capital stock of $50,000, and will take up the plant known as the Iowa Iron Works and shipyards located in the Ice Harbor of that city. The company will operate the boiler shop, machine shop and foundry located on Ninth and Washington streets for the manufacture of boilers, engines and equipments necessary for steamboat work, while the hulls, both wood and steel, will be built at the yards. They also intend building engines, pumps, &c., of various styles and will do general repair work. Orders on hand include a light draft stern wheel river boat for Mexican trade, a stucco mill and a number of stationary engines. The shops will be running in full blast within a short time. The officers are: Peter Kiene, president; William Hopkins, vice-president and superintendent; F. G. Hornbogen, secretary; W. W. Bonson, treasurer and manager.

At a recent meeting of the stockholders of the Union Boiler & Mfg. Company, Lebanon, Pa., a dividend was declared. Ground has been broken for a brick addition, 101 x 46 feet, to their plant at Fourth street and the P. & R. Railway. The officers are: Thomas H. Capp, president; John Hunsicker, treasurer; J. B. Hursh, secretary; Henry T. Richards, superintendent.

The C. & G. Cooper Company, Mt. Vernon, Ohio, manufacturers of Corliss engines, boilers, &c., are building an iron addition, 107 x 226 feet, to their machine shop, which they expect to have ready for occupation by the middle of the summer. The main bay, in which will be placed two 30-ton traveling cranes, will be 58 feet wide.

An amendment in the charter of the Richmond Locomotive & Machine Works of Richmond, Va., has been authorized, by which the name is changed to the Richmond Locomotive Works.

The Tonkin Steam Carriage Supply Company, Oswego, N. Y., have incorporated with a capital stock of $50,000, for the manufacture of steam carriage boilers, low water alarms, engines, &c., and are fitting up a new plant. J. J. Tonkin is president of the company.

The York Mfg. Company, York, Pa., manufacturers of ice making and refrigerating machinery, report the following orders: Ninety-ton refrigerating machine and compression side, Enterprise Brewing Company, Fall River, Mass.; 60-ton can ice making plant, Riverside Ice Company, New Orleans, La.; two 25-ton refrigerating machines and 15-ton ice plant, Elk Run Brewing Company, Punxsutawney, Pa.; machinery for 60-ton capacity plant, People's Ice Company, Charlotte, N. C.; machinery for new plant, South Jersey Plate Ice Company, Gloucester, N. J.; machinery for 10-ton ice plant, D. B. Bennett, Ottawa, Kan.; 30-ton ice making machine, Lansdale Ice Mfg. Company, Lansdale, Pa.; machinery for 50-ton ice plant, Union Cotton Oil & Meal Company, Kansas City, Mo.; 10-ton ice plant for

export to Holland; 15-ton ice making plant, Junction City Electric Railway, Light & Ice Company, Junction City, Kan.; 100-ton cross compound condensing refrigerating machine and compression side, Chas. Wolff Packing Company, Topeka, Kan.; 25-ton ice machine, E. J. Ulirich, Pueblo, Col.; 125-ton ammonia condensing system, Westerlin & Campbell style, American Ice Company, Atlantic City, N. J.; machinery for 100-ton ice plant, Albert Meyer, Chicago, Ill.

The Wilkinson Mfg. Company, Bridgeport, Pa., manufacturers of automatic stokers, steam engines, condensers and pumps, have completed their new plant. The main building, of brick and steel construction, is 50 x 208 feet, extending along the main line of the Philadelphia & Reading Railway, and is 46 feet in hight, of two stories, with a 10-foot basement, which will be used for cleaning castings, a branch which will be added during the summer. Beyond the building line the company have 140 additional feet of ground, which will permit of extensions at any time. An electric crane and elevators for hoisting heavy castings will be installed, and the whole plant operated by electricity, which will be generated in a 13 x 36 feet two-story building at the southwest side of the main structure. Adjoining the works is a one-story brick office building. When in operation the new plant will employ about 100 hands, or about twice as many as at present. The officers are Alfred Wilkinson, president; Joseph C. Laird, secretary and treasurer.

J. G. Speidel, Reading, Pa., manufacturer of the economic safety hoist traveling cranes, overhead tramway, &c., has completed his new plant at Buttonwood and Gordon streets and has just moved in. The new shop is of brick construction, 95 x 130 feet, partly two stories in hight. There is a railroad siding running through the yard and into the building, with a traveling crane running the full length through the shop, making it possible to handle large traveling cranes with greatest ease. Machinery of latest design has been added and the output greatly increased. Among the orders in hand and under construction are two 20-ton 48-foot span traveling cranes for the Republic Iron & Steel Company, and several smaller ones for other parties. Mr. Speidel reports business very good and inquiries numerous.

The American Blower Company of Detroit, Mich., manufacturers of hot blast heaters, fans, blowers, engines, dry kilns, &c., expect to begin operations in the early spring upon extensive additions to their present plant. The plans contemplate a very large addition to the steel plate fan erecting shop. This will be of steel construction throughout. A new blacksmith shop, storage warehouse and power house will be erected. The power house will be equipped with new boilers, engines, dynamos, mechanical draft apparatus, &c., all of the latest design. The entire plant will be remodeled, rearranged and equipped throughout with new cranes, hoists, &c. A commodious and well appointed wash room and locker will be provided for the men. When the improvements are completed the plant will be the best equipped of its kind in the country.

The Filer & Stowell Company of Milwaukee, Wis., have just received an order from the Rhode Island Suburban Railway Company for a cross compound engine for their power house at Providence. This engine is a duplicate of two now building for the same company, and has cylinders 32 x 64 x 54 inches. When this engine is in use this company will have six large cross compound direct connected engines, the smallest one being 2000 horse-power.

Foundries.

Jacoby & Weishampel, the Allentown architects, are drawing up plans for the buildings of the Nazareth Foundry & Machine Company at Nazareth, Pa. The dimensions of the foundry will be 40 x 60 feet and the machine shop 40 x 65 feet. There will also be a pattern shop and office. The annex to the building will contain the cupola, cast house and coal storage. The works will be in operation by May 1.

The Henry Roos Foundry Company, Bloomingdale road and Kimball avenue, Chicago, report their business steadily growing. They have just built a core oven 16 x 24 feet, and have installed new tools, which will enable them to get their work out more rapidly.

The Oswego Boiler Works, Oswego, N. Y., owned by W. M. Jermyn, have started to build a foundry for general work. The building will be 55 x 150 feet, with wings for pattern shop, core room and cupola room, and will be completed about May 1.

The Meadville Malleable Iron Company, Meadville, Pa., have received an order from the Pressed Steel Car Company of Pittsburgh for 10 tons of malleable castings a day, ranging in weight from 10 to 100 pounds each.

Wilcox, Crittenden & Co., Middletown, Conn., manufacturers of gray and malleable iron and brass castings, galvanizers and tinners and makers of marine and awning hardware, have recently installed an electric plant in connection with their works which is supplying their entire plant with power and light. Each department has an independent motor and can be run in connection with one or more other departments or alone. A new 250 horse-power cross compound engine is being put in.

The Susquehanna Castings Company, Wrightsville, Pa., find it necessary with their increasing business to further enlarge their plant. A new brick building, 60 x 45 feet, for general manufacturing purposes is now in course of erection, and a new 60 horse-power engine and a 70 horse-power boiler are also being installed.

Hardware.

The Wrightsville Hardware Company, Wrightsville, Pa., continue busy in all departments. The new additions to their plant are now completed and portions of the buildings have been occupied for some time. Inquiries and orders with them are of good volume and foreign trade continues active. Among recent shipments for export may be noted one of 500 sets of Mrs. Best's Improved Sad Irons, and another of 50 gross of Hammers, the latter being for delivery in England.

Miscellaneous.

Clyde & Styett, proprietors of the Electric Wire Works, Rome, N. Y., have purchased from the Rome Factory Building Company an acre of ground, upon which they will construct a new factory, besides adding extensive improvements to their present plant. Machinery has been purchased and the company expect to have their new works in operation by June 1. They will have a daily capacity of about 10,000 pounds of fine copper, brass and german silver wire.

The Toledo Bridge Company, Toledo, Ohio, have completed their new plant, which will be employed for heavy sections only, the old plant being operated in connection with the new one as an auxiliary and for structural and highway work exclusively.

The carpenter, machine and repair shops of the Boston & Maine Railroad at Mechanicsville, N. Y., were destroyed by fire February 11, entailing a loss of about $60,000, covered by insurance.

The H. C. Cook Company, Ansonia, Conn., manufacturers of the Gem nail clipper, have purchased from the Sperry Mfg. Company the property known as the Fifth Wheel Shop and will take possession at once. Into the new plant the company will concentrate the machinery and tools of their nail clipper works and also the Connecticut Insulating Wire Company, a joint stock company, the stock of which is largely held by the H. C. Cook Company.

The American Electric Appliance Company, who operate a plant at Watsonville, Pa., have leased from Samuel Rosengarten of Philadelphia the plant of the Marcus Hook Iron Works at Marcus Hook, Pa., and will operate it as soon as the necessary repairs and alterations have been made. The American Company manufacture patent engines and dynamos which they claim produce a steady current and light.

The Union Works, Washington, D. C., owned by C. A. Schneider's Sons, have recently added to their plant a compressor with pneumatic riveters, clippers and punches. They have also acquired additional ground for the storage of structural shapes, and erected a larger and more commodious drafting room. They are now engaged building the structural work of the new Government Printing Office at Washington, which will aggregate between 7000 and 8000 tons.

The Moloney & Bennet Belting Company, Washington and Canal streets, Chicago, report that the demand for belting is increasing. They have lately received numerous large orders and have put on additional salesmen. B. F. Wolf will visit Texas, and W. A. Lee, Jr., will see the trade in Illinois, Iowa and Indiana.

The Chicago Belting Company report that their January and February trade increased 15 per cent. over the same months last year. Large orders were recently received from the Carpenter Steel Company, Reading, Pa.; Illinois Sugar Refining Company, Peoria, Ill.; National Conduit Company, Hastings on the Hudson, N. Y. The company expect a good year, and in consequence of this they have increased their force of salesmen.

The stockholders of the National Fire Proofing Company of Pittsburgh met in that city last week and re-elected the former Board of Directors, as follows: D. F. Henry, Adam Wilson, S. C. Grier, J. J. Booth, Frederick Gwinner, Jr., E. B. Alsop, W. A. Dunker, T. G. McCutcheon and T. J. Hamilton. The board organized by electing D. F. Henry president; T. J. Hamilton, vice-president; W. D. Henry, secretary, and William H. Graham, treasurer. The president's report for the past year showed an increase in capacity in ten years from 6000 to 275,000 tons per annum; dividends earned, 7 per cent. on preferred and 13 per cent. on common stock, with a surplus for future dividends of $275,000.

The J. E. Page Safety Car Company, Independence, Mo., have incorporated with a capital of $200,000 for the manufacture of safety cars under patents secured by Mr. Page. As soon as possible miniature trains will be built by contract for advertising purposes, and in the near future a plant will be constructed. The officers are J. E. Page, president; R. D. Wirt, vice-president; C. C. Hook, secretary; R. May, treasurer; E. M. Riddle, general manager.

The Onondaga Dynamo Company, Syracuse, N. Y., are increasing their capacity by installing new machinery and taking on an additional force of men. The company report the general demand for electrical goods to be greater than ever before.

The Iron and Metal Trades.

Pending the official announcement of the details of the Morgan consolidation, the trade is at sea as to its possible effect, which no one, whatever his connection with the industry, can escape. A large capitalization—and the facts point in that direction—means very heavy fixed charges, which in turn would imply ability on the part of outsiders to compete. Certainly no new enterprises would enter the lists without very substantial financial backing, and with ample provision for raw materials. Until the price paid for peace among the interests to be gathered in is known it is impossible to judge whether it is high or low.

All will depend upon the management, which must be broad and tactful. Crowding prices would be fateful in many ways. Leading men point out that the true policy must be to secure economies and share them with the consumers. In other words, the plan must be to persistently lower prices. With control of everything from the ground up there will be little excuse for fluctuations and a steadying of the markets must be a natural result.

If it were not that the situation in Steel Billets is peculiar, one of the first steps should be a lowering in the price, which would do much to allay public apprehension.

The feature of the week has been the heavy buying of Pig Iron, notably for Steel purposes. Some large sales of Bessemer Pig have been made in the valleys, and the market has risen squarely. A leading interest in the Pittsburgh district has purchased heavily of Basic Pig Iron in nearly all the markets. Birmingham, Virginia, Eastern and Western Pennsylvania furnaces have been the sellers, the total quantity of Basic Pig involved probably being not far from 60,000 or 70,000 tons. There have also been sales aggregating at least 20,000 tons of Pig Iron by furnaces in the Lebanon Valley, and there have been transactions in Pittsburgh of round lots of Mill Iron. The suspicion that all these transactions have been carried through in order to give the Iron market an appearance of buoyancy in view of the financial developments does not seem justified.

In Foundry Iron the Cast Iron Pipe founders have been buying some round lots, East and West, and there is generally a somewhat better feeling.

There is a growing scarcity of Steel, and premiums are being paid for prompt delivery. The fact that some of the consolidation finishing mills are hampered in their operations by the absence of Steel is a proof that there is no concerted movement among the works in the Billet pool to educate the buyers up to a meditated advance.

In the Wire Rod market the burning of a New England mill has created quite a gap. It is understood that the works had about 15,000 tons on their books.

The leading Wire interest reports a very heavy business. During the first 14 days of this month specifications were received carrying about 60,000 tons of products, as compared with about 80,000 tons for the whole of January.

A very large tonnage of Structural Material keeps coming up. The leading bridge concern have taken about 35,000 tons in one week, including 28,000 tons for bridges on the New York Central road.

In the Chicago district heavy transactions are reported in Iron and Steel Bars, and the prices have again hardened after their brief spell of easing.

In every direction there is evidence of a large consumption, encouraged, no doubt, by the moderate prices which prevail in nearly every branch. The trade has evidently outlived the evil effects of the boom and confidence in values is restored.

The enormous pressure on the Connellsville Coke region is proof of the great activity among the furnaces and the foundries.

Very little is doing in any branch of the export trade in the heavy lines of Iron and Steel.

A Comparison of Prices.

At date, one week, one month and one year previous.

Advances Over the Previous Month in Heavy Type. Declines in Italics.

	Feb. 20, 1901.	Feb. 13, 1901.	Jan. 23, 1901.	Feb. 21, 1900.
PIG IRON:				
Foundry Pig, No. 2, Standard, Philadelphia	*$15.25*	$15.25	$15.50	$22.50
Foundry Pig, No. 2, Southern, Cincinnati	*12.75*	12.75	13.25	20.25
Foundry Pig, No. 2, Local, Chicago	*14.00*	14.50	14.50	23.50
Bessemer Pig, Pittsburgh	**14.75**	14.00	13.25	24.50
Gray Forge, Pittsburgh	**13.75**	13.15	13.15	21.00
Lake Superior Charcoal, Chicago	*17.50*	17.50	18.50	25.50
BILLETS, RAILS, ETC.:				
Steel Billets, Pittsburgh	**20.50**	19.75	19.75	33.50
Steel Billets, Philadelphia	**22.00**	21.00	21.00	36.50
Steel Billets, Chicago	**22.50**	20.75	20.75	nom.
Wire Rods (delivered)	35.00	35.00	35.00	nom.
Steel Rails, Heavy, Eastern Mill	26.00	26.00	26.00	35.00
Spikes, Tidewater	1.50	1.50	1.50	2.65
Splice Bars, Tidewater	*1.30*	1.30	1.35	2.20
OLD MATERIAL:				
O. Steel Rails, Chicago	12.00	12.00	12.00	19.00
O. Steel Rails, Philadelphia	15.50	15.50	15.50	22.00
O. Iron Rails, Chicago	*18.00*	18.00	18.50	23.00
O. Iron Rails, Philadelphia	**18.50**	18.50	18.00	26.00
O. Car Wheels, Chicago	**16.50**	16.50	16.00	24.00
O. Car Wheels, Philadelphia	17.00	17.00	17.00	22.00
Heavy Steel Scrap, Chicago	*11.50*	12.00	12.00	17.00
FINISHED IRON AND STEEL:				
Refined Iron Bars, Philadelphia	1.45	1.35	1.45	2.30
Common Iron Bars, Chicago	1.45	1.45	1.45	2.30
Common Iron Bars, Youngstown	....	1.30	1.30	2 15
Steel Bars, Tidewater	**1.45**	1.35	1.40	2.40
Steel Bars, Pittsburgh	....	1.25	1.25	2.25
Tank Plates, Tidewater	1.55	1.55	1.55	2.25
Tank Plates, Pittsburgh	1.40	1.40	1.40	2.10
Beams, Tidewater	*1.63*	1.63	1.65	2.40
Beams, Pittsburgh	1.50	1.50	1.50	2.25
Angles, Tidewater	*1.53*	1.53	1.55	2.40
Angles, Pittsburgh	1.40	1.40	1.40	2.25
Skelp, Grooved Iron, Pittsburgh	**1.50**	1.45	1.45	1.95
Skelp, Sheared Iron, Pittsburgh	**1.55**	1.50	1.50	2.25
Sheets, No. 27, Pittsburgh	2.85	2.85	2.85	3.00
Barb Wire, f.o.b. Pittsburgh	**2.90**	2.90	2.80	2.80
Wire Nails, f.o.b. Pittsburgh	**2.30**	2.30	2.20	3.20
Cut Nails, Mill	**2.05**	2.05	1.95	2.50
METALS:				
Copper, New York	**17.00**	17.00	16.75	16.25
Spelter, St. Louis	3.87½	3.75	3.87½	4.57½
Lead, New York	4.37½	4.37½	4.37½	4.70
Lead, St. Louis	4.17½	4.17½	4.17½	4.57½
Tin, New York	*26.90*	26.45	27.00	31.75
Antimony, Hallett, New York	9.25	9.25	9.25	9.75
Nickel, New York	55.00	55.00	55.00	38.00
Tin Plate, Domestic Bessemer, 100 lbs., New York	4.19	4.19	4.19	4.84

Chicago.

Office of *The Iron Age*, 1205 Fisher Building, CHICAGO, February 18, 1901.

The Steel situation is steadily growing stronger. Billets are more scarce than ever. Large inquiries for Open Hearth Billets have been turned down by local makers, who are unable to take on additional contracts. Manufacturers of Finished Steel products report their output sold up far into the future, with specifications running ahead of the terms of contracts. Steel Bars have advanced $2 per ton; Small Angles, $2; Steel Hoops, $3; and Cotton Ties, $10. An advance on both Plates and Sheets is in the air, the mills being crowded with work and new business continually coming up. A great deal of business is in sight in Structural Material, and an advance in this line would not be surprising. The only discordant note in the general chorus is heard from Foundry Pig Iron. Makers of Foundry Irons seem anxious for business and competition is sharp on every order.

Pig Iron.—An improvement is observed in the character of the trade. Buying is more general. The volume as yet is not very heavy, but promises to become so if the buying movement continues. The transactions of the week incuded quite a number of deals for 1000 tons and over. It is believed that some large tonnage has been placed privately, but information is not forthcoming. A few buyers have covered their requirements for the year, believing that it is well to cover at prices now going. Competition has been very keen, especially by Southern

sellers. In exceptional cases No. 2 Southern Foundry has been sold as low as $13.50 and No. 3 Foundry at $13. These prices have not become regular, and it is claimed by the furnace companies that prices are more likely to show some stiffening hereafter than to further decline. Quotations are as follows:

Lake Superior Charcoal	$17.50 to $18.00
Local Coke Foundry, No. 1	14.50 to 15.00
Local Coke Foundry, No. 2	14.00 to 14.50
Local Coke Foundry, No. 3	13.50 to 14.00
Local Scotch, No. 1	14.50 to 15.00
Ohio Strong Softeners, No. 1	16.00 to 16.25
Southern Silvery, according to Silicon.	15.00 to 15.50
Southern Coke, No. 1	14.40 to 14.90
Southern Coke, No. 2	13.90 to 14.15
Southern Coke, No. 3	13.40 to 13.65
Southern Coke, No. 1 Soft	14.40 to 14.90
Southern Coke, No. 2 Soft	13.90 to 14.15
Foundry Forge	12.65 to 12.90
Gray Forge and Mottled	12.65 to 12.90
Southern Charcoal Softeners, according to Silicon	15.00 to 17.00
Tennessee Silicon Pig	16.50 to 18.00
Alabama and Georgia Car Wheel	19.60 to 20.35
Malleable Bessemer	14.75 to 15.00
Standard Bessemer	14.75 to 15.00
Jackson County and Kentucky Silvery, 8 per cent. Silicon	16.50 to 17.50

Bars.—Heavy transactions are reported in both Bar Iron and Steel Bars. The Steel situation is particularly strong, prices having advanced $2 per ton, but Bar Iron is only being quoted for immediate acceptance. It is now so difficult to secure anything like reasonable delivery on Steel Bars that large consumers are said to be getting anxious, as they need additional quantities to supply their wants. The Bar Iron mills are rapidly filling up. Mill shipments of Common Iron are quoted at 1.45c.; Soft Steel Bars, 1.50c., and Hoops, 1.90c., base, Chicago. Jobbers report a heavy trade, with prices of small lots quoted at 1.75c. to 1.80c. for Common Iron, 1.70c. to 1.75c. for Steel Bars and 2.10c. to 2.35c. for Hoops.

Car Material.—An increasing inquiry is being received for all kinds of Car Material. An order was placed for 3500 tons of Plates and Beams to be used for this purpose. Prospects are very encouraging for much more business from this source.

Structural Material.—Building projects are in sight requiring about 15,000 tons in the aggregate. The building trade promises to be quite lively in the near future. A great deal of track elevation is to be done this year in this city, which will take thousands of tons of Steel for bridge work. The demand for small lots of Shapes continues excellent. Mill shipments are quoted as follows: Beams, Channels and Zees, 15 inches and under, 1.65c.; 18 inches and over, 1.75c.; Angles, 3 inches and over, 1.55c.; Angles, under 3 inches, 1.60c. rates; Tees, 1.70c.; Universal Plates, 1.55c. to 1.60c. Small lots of Beams and Channels from local yards are quoted at 2.10c. to 2.25c.; Angles, 1.60c. to 1.70c. rates, and Tees, 1.75c. to 1.85c.

Plates.—An inquiry is in the market for 10,000 tons. Quite a good trade in moderate quantities is reported for the week. The mills are now in such shape that an early advance is expected. One manufacturer reports having been offered a good order at 1.45c., Pittsburgh, but because of inability to make deliveries desired was obliged to refuse it. Mill shipments of Tank Plate, ¼-inch and heavier, in carload lots, are quoted at 1.55c. to 1.60c., Chicago; Flange, 1.65c.; Marine, 1.75c. Jobbers quote small lots from store at 1.80c. to 2c. for Tank, and 2.10c. to 2.25c. for Flange.

Sheets.—The active demand for Sheets, which has so long continued, shows no sign of abatement. The trade is so heavy and stocks are so light that it is difficult to see how an advance can be avoided. Jobbers report a continued strong demand. Mill shipments of No. 27 Black are quoted at 3.15c., Chicago, while Galvanized Sheets are held at 70 and 7½ off. Small lots from stock are quoted at 3.30c. to 3.40c. for No. 27 Black, 2.40c. for No. 16, 2.30c. for No. 14, 2.10c. for No. 12, 2c. for Blue Annealed No. 10, and 70 off for Galvanized.

Merchant Pipe.—Business is very satisfactory, with prices firmly maintained. Manufacturers' prices, random lengths, are as follows:

	In carloads.		Less than carloads.	
	Blk.	Galvd.	Blk.	Galvd.
⅛ to ½ inch and 11 to 12 inches	59.2	46.2	54.9	40.9
¾ to 10 inches	66.7	53.3	61.9	49.9

Boiler Tubes.—A very good movement from stock is reported by jobbers. They quote from store as follows:

	Steel.	Iron.
1 to 2¼ inches, inclusive	50	40
2½ inches	50	42½
2¾ to 5 inches	60	50

Cast Iron Pipe.—Manufacturers are enjoying a much better demand than has been seen at this season for a number of years. The business in sight is heavy, although individual purchases in the West have thus far not indicated such large tonnages as reported from the East. Nearly every city, however, is expecting to buy some Pipe this year. Prices now being very reasonable, the opportunity will be embraced for making improvements which have long been contemplated.

Rails and Track Supplies.—Rail makers report sales of Heavy Sections aggregating 15,000 tons, with negotiations for additional quantities promising much more business in the near future. A large trade has been done in Light Sections. Track Supplies are also in strong demand. Heavy Sections of Steel Rails are quoted at $26 and Light Sections at $25.50 to $28, according to weight; Splice Bars, 1.30c. to 1.40c.; Spikes, 1.60c. to 1.75c., from mill; Track Bolts, with Hexagon Nuts, 2.55c. to 2.60c., and with Square Nuts, 2.40c. to 2.45c.

Billets.—It is claimed that neither Bessemer nor Open Hearth Billets are to be had for anything like early delivery. An inquiry for 15,000 tons of Open Hearth Billets was turned down by the local mill. Quotations are nominal for this reason. The combination price of Bessemer Billets is $20.75, Chicago, but if any were obtainable $2 per ton more could easily be had. Open Hearth Billets are quoted at $25 upward, according to quantity and specifications.

Merchant Steel.—Trade is moderate, transactions calling for small quantities only. The mills, however, are crowded with work and prices are firm and advancing. Machinery Steel has been advanced $3 per ton. Mill shipments, Chicago delivery, are quoted as follows: Smooth Finished Machinery Steel, 1.90c. to 2c.; Smooth Finished Tire, 1.75c. to 1.95c.; Open Hearth Spring Steel, 2.15c. to 2.40c.; Toe Calk, 2.40c. to 2.60c.; Sleigh Shoe, 1.70c. to 1.90c.; Cutter Shoe, 2.40c. to 2.60c.; Cold Rolled Shafting, 55 off. Ordinary grades of Crucible Tool Steel are quoted at 6c. for carloads and 7c. from store; Specials, 13c. upward.

Old Material.—Low Phosphorus Steel Scrap appears to be about the only article in the Scrap line which is in good demand. It has been sold at about $17, gross ton, Chicago. Business in other lines has been extremely quiet, as consumers are either well stocked or are buying as little as possible in the hope of getting lower prices. Our quotations are continued, but it is understood that holders who are anxious to sell will hardly be able to get these figures. The following are approximate quotations per gross ton:

Old Iron Rails	$18.00 to $18.50
Old Steel Rails, mixed lengths	12.00 to 12.50
Old Steel Rails, long lengths	14.50 to 15.00
Heavy Relaying Rails	20.00 to 22.00
Old Car Wheels	16.50 to 17.00
Heavy Melting Steel Scrap	11.50 to 12.00
Mixed Steel	9.50 to 10.00
No. 1 Busheling	10.00 to 11.00
No. 2 Busheling	9.00 to 9.50

The following quotations are per net ton:

Iron Fish Plates	$16.00 to $16.50
Iron Car Axles	18.50 to 19.00
Steel Car Axles	15.00 to 15.50
No. 1 Railroad Wrought	14.00 to 14.50
No. 2 Railroad Wrought	12.00 to 12.50
Shafting	15.00 to 16.00
No. 1 Dealers' Forge	11.00 to 11.50
Iron Axle Turnings	9.00 to 9.50
Soft Steel Axle Turnings	8.00 to 8.50
Machine Shop Turnings	7.00 to 7.50
Cast Borings	3.00 to 3.50
Mixed Borings, &c	4.00 to 4.50
No. 1 Boilers, cut	9.00 to 9.50
No. 2 Boilers, cut	7.50 to 8.00
Heavy Cast Scrap	11.50 to 12.00
Stove Plate and Light Cast Scrap	8.00 to 8.50
Railroad Malleable	11.00 to 11.50
Agricultural Malleable	9.50 to 10.00

Metals.—Carload lots of Lake Superior Copper continue to be quoted at 17½c., and Casting brands, 17¼c. The demand for Pig Lead is quiet, but prices are unchanged at 4.32½c for Desilverized and 4.42½c. for Corroding in 50-ton lots.

Coke.—An excellent demand is reported by representatives of Standard grades of Coke, with prices unchanged at $4.50 to $5 for 72-hour Foundry Coke.

Philadelphia.

Office of *The Iron Age*, Forrest Building,
PHILADELPHIA, PA., February 19, 1901.

The situation in Iron and Steel is becoming very interesting. It is difficult to give an exact diagnosis, but there are influences at work which point very distinctly to higher prices. The tendency is more marked in some lines than it is in others, but the exact status will probably not be developed until the merging of the various Steel companies is accomplished. Unofficial advances have already been made in Billets, small Angles, Steel Bars, &c., but it is hardly to be supposed that any general movement will be inaugurated until it is absolutely certain that there will be complete unanimity among the interests whose object it is to regulate matters of this kind. The general tendency, however, as we have already stated, is toward higher figures, and even those who are supposed to be in the combine are under one pretense or another getting more money than is indicated by the official rates. It is also a significant feature that the Carnegie interests have been and still are heavy buyers of Pig Metal. They have not only taken large blocks in the Central West, but have invaded Virginia and Central Pennsylvania, taking almost everything available at an average of better prices than could have been realized in any of the Eastern markets. This fact, combined with the remarkable statement as to furnace conditions as shown in last week's issue of *The Iron Age*, is conclusive evidence of the inherent strength of the Iron markets, and leads to the impression that higher prices are only a question of time. No great advances are expected, but enough to make an appreciable difference between those of to-day and those likely to rule a month or six weeks hence.

Pig Iron.—The market is irregular, and looks strong from some standpoints and the reverse of strong from others. Some who have made efforts to secure business in lots of 2000 to 4000 tons have been confronted with extremely low figures, while those who are content to accept such business as comes along have had no difficulty in taking the business at last week's prices. Buyers of large lots, however, recognize the fact that Iron can be had at 25 to 50 cents less than the regular quotations, and it is facts of this character that make the market so difficult to gauge; but there are many favorable features, and these really appear to predominate. First, we have the absolute certainty of an enormous consumption, with all the indications favoring a continued increase. Second, the increase in the output of Pig Iron at the rate of over 100,000 tons during January was offset by a still greater tonnage in deliveries, so that stocks during what is usually the dullest month in the entire year show a slight decrease, leaving quite small stocks as reserve to fall back upon. Third, the Western markets are developing great activity, and prices in that district have a decided upward tendency; and fourth, a great many inquiries are being made from large buyers in the Atlantic Coast territory, and if, as seems probable, they result in a corresponding amount of orders, the tone of the market hereabouts ought to be greatly improved. Meanwhile, however, quotations are about as follows for city and nearby points: No. 1 X Foundry, $16 to $16.25; No. 2 X Foundry, $15.25 to $15.75; No. 2 Plain, $14.65 to $15; Standard Gray Forge, $14.25 to $14.50; Ordinary Gray Forge, $13.75 to $14; Basic (Chilled), $14.25 to $14.50; Basic (Sand), $13.75 to $14.

Billets.—Business is confined to a few special orders, and although prices are nominally unchanged, it is obligatory to pay more money to secure deliveries in anything like reasonable time.

Plates.—There is not the slightest change since date of our last report. Mills are nearly all running to their full capacity, and from all appearances are likely to continue doing so indefinitely. No very specially large amount of business has been taken, but there is a steady run of orders from day to day, which keeps everything in active operation. Prices are unchanged, but it is expected that some little advance will be made as soon as the companies complete their consolidation deal. Prices as follows—viz., for nearby points: Plates, ¼-inch and thicker, 1.55c. to 1.60c.; Universals, 1.55c. to 1.60c.; Flange, 1.65c. to 1.75c.; Charcoal Iron Plates, C. H. No. 1, 2.25c.; Best Flange, 2.75c.; Fire Box, 3.25c.

Structural Material.—The only change in this deparment is an advance of a tenth on the smaller sizes by the outside mills. The combination prices run as before—viz.: Angles, 3-inch and upward, 1.65c. to 1.75c.; less than 3-inch, 1.50c. to 1.60c.; Beams and Channels, 15-inch and upward, 1.65c. to 1.75c.

Bars.—The demand is quite large, but not sufficient to keep all the mills as busy as they would like to be, although it is expected that weather more suitable for outdoor work will bring out a great many new orders. Steel Bars have been advanced to 1.45c. to 1.55c., and Iron Bars continued at 1.40c. to 1.50c., seaboard or nearby points.

Sheets.—Conditions unchanged, with prices strong for best Sheets as follows (common Sheets two-tenths less): No. 10, 2.25c.; No. 14, 2.45c.; No. 16, 2.65c.; Nos. 18-20, 3.15c.; Nos. 21-24, 3.25c.; Nos. 26, 27, 3.30c.; No. 28, 3.45c. to 3.50c.

Old Material.—The market is steady, but not very active. Bids and offers about as follows for deliveries in buyers' yards: Choice Railroad Scrap, $18 to $19; No. 1 Yard Scrap, $13 to $14; No. 2 Light Scrap, $11.50 to $12.50; Machinery Cast, $14 to $14.50; Heavy Steel Scrap, $15.25 to $16; Old Iron Rails, $18.50 to $19.50; Old Steel Rails, $15.50 to $16; Wrought Turnings, $10 to $10.50; Cast Borings, $8 to $8.25; Old Car Wheels, $17 to $18; Iron Axles, $20 to $22; Steel Axles, $17 to $18.

Cleveland.

CLEVELAND, OHIO, February 19, 1901.

Iron Ore.—The prevailing agitation in the Steel trade and the attendant uncertainty as to the future is preventing any action being taken that would tend to fix prices at which Iron Ore is to be sold this year. So far there has not been an inquiry for this product and until some discussion is started, giving at least an intimation of how much material is to be needed during the season, the Ore association will hold its peace as to prices. Ore men say that it will be at least 30 days before anything is done. Some of the vessel owners who have been away for the winter are returning home and discussion of possible season rates for transportation of Ore upon the lakes is freer. Owners reluctantly admit that the tonnage applicable to the movement of Ore is vastly in excess of what the output can possibly be, and are not counting upon a very high rate.

Pig Iron.—The long expected awakening of interest in Pig Iron seems to be dawning. The market is stronger this week than it has been for months and two grades have shown slight advances in prices, with inquiries for material sufficiently heavy to encourage the hope that a general advance may be seen soon. The best demand has been for Bessemer Irons and the inquiries are even heavier than the sales. This week Bessemer sales have been made at $13.25 in the Valley, which is an advance of 50c. over the last quotation. Basic Irons have also shown an advance, being quoted now at $13.75, Valley furnace, at which figure a number of small sales have been made. The capacities of the furnaces will not permit of large lots being sold for immediate delivery and the market is in such a state of uncertainty as to the future that buyers refuse to cover for any great period ahead. The sales of Foundry Irons have been moderately heavy, but the prices are holding up well. The market quotation is unchanged, save that some strength has been added. The old prices of $14 and $13.50, Valley furnace, for Nos. 1 and 2 might be quoted, although the market is strong at that figure and any big order might bring out a demand for better prices. Prospects for deliveries in Foundry Irons are good.

Finished Material.—Since the reduction of freight rates went into effect February 1 the market has heard rumors that the differential between Pittsburgh and Cleveland was to be established at 8½c., which formerly obtained when freight rates were on the same basis as has recently been established. Some mills were selling with those conditions in mind and quoted the various grades of Steel in Cleveland 8½c. higher than Pittsburgh. A meeting of the pool was held during the week at which it was decided that the old difference of 10c. should apply permanently, regardless of the freight rate. It happened that under the former freight rate the difference was 10c., which established the prices as they have recently been quoted. Bars have advanced slightly, offsetting the effect of the recent slump. The new price is 1.35c., Pittsburgh. This is generally adhered to now, whereas before some of the mills in this territory were making 1.25c. their figure. The talk of an advance in the price of Billets, which emanated from Pittsburgh, is in part accountable for the advance, but the cause is complete in the sales recently made, which have brought about a congestion in some of the mills. Prompt deliveries on Bars are harder to obtain now than at any time of late. No change has been seen in the price of Billets in this territory, although some reports have indicated that a premium of 50c. was being paid over the pool prices. The demand here has been only moderate and the market steady at $19.75, Pittsburgh. This week has seen an order for 7000 tons of Steel Rails placed. This has been hanging fire for many weeks. There is also an inquiry for 2500 tons, which will be closed in a short time. The pool price, $26, prevailed and no effort has been made to force a change. The Structural Material market is lively also. An order for 30,000 tons will be placed shortly by the American Bridge Company, who have taken a large contract for the New York Central Railroad. A good per cent. of this will be placed in this territory, as the understanding is that the Lake Shore bridges west of this city are to be strengthened. A Cleveland party is also in the market for 3000 tons of Steel which will be used in a building in New York. The Plate market is firm. The mills through this section are pretty well filled up and some orders are being sent East, where better deliveries are promised. The price holds firm at 1.40c., Pittsburgh.

Old Iron.—All indications are for a decline in the prices of Scrap Iron shortly. The dealers are able to pick up good sized lots now at about their own figures, and the consumers, being aware of this condition, are demanding better terms of the middleman. Temporarily the prices hold firm, with the volume of business small. The market might be quoted as follows: No. 1 Wrought, $15, net; Cast Scrap, $13, net; Stove Plate, $10, net; Old Car Wheels, $17.50, gross; Cast Iron Borings, $5.75; Heavy Steel, $13.50.

St. Louis. *(By Telegraph.)*

Office of *The Iron Age*, 1205 Chemical Building, St. Louis, February 20, 1901.

Pig Iron.—The volume of business was not very large during the past week. Pig Iron was bought mainly in a retail way. Foundrymen do not seem to fear an advance and there is not that activity in the Pig Iron market which obtains at present in the line of Finished products. The modest orders do not come only from small founders; some heretofore heavy buyers were in the market the past week, but placed orders for small lots only. It was expected that the regular buying would begin this month, but so far not even the rumor concerning the probable consolidation in the Steel world has aroused any unusual interest in the Pig Iron market. Furnace representatives are not agreed as to prices. Several prominent producers name quotations in excess of those below. Makers of favorite brands and who have satisfactory tonnage written up are also naming higher prices. We quote, f.o.b. St. Louis:

Southern, No. 1 Foundry	$14.00 to $14.25
Southern, No. 2 Foundry	13.50 to 13.75
Southern, No. 3 Foundry	13.00 to 13.25
No. 1 Soft	14.00 to 14.25
No. 2 Soft	13.50 to 13.75
Gray Forge	12.25 to 12.50

Bars.—There is a very active demand for Bars and other finished products. The general situation shows an improvement over last week. Mills say specifications for Bars are arriving to an unusual extent and are taxing their capacity. Jobbers still announce that mills are not sending shipments forward with the desired promptness. Slight advances in prices have been made, but orders may still be placed at prices named below. Mill prices for both Iron and Steel in heavy tonnage are 1.45c. to 1.50c., half extras, East St. Louis. Jobbers' prices on less than carloads are 1.75c. to 2c., full extras.

Rails and Track Supplies.—Inquiry for both Standard and Light Rails is quite noticeable for the season. The tonnage named in individual cases is not large, but the number of moderate extensions of feeders to trunk lines is said to present very desirable business in the aggregate. We quote Steel Splice Bars, 1.35c. to 1.45c.; Bolts, with Square Nuts, 2.35c.; with Hexagon Nuts, 2.45c.; Spikes, 1.75c.

Pig Lead.—Fair business in Missouri brands at 4.17½c. to 4.20c. Desilverized unchanged at 4.32½c. Some producers were holding back expecting higher prices to follow, provided the new smelter combination was carried through. They are now awaiting the outcome of the matter. Lead Ore continued to sell at $46 per ton.

Spelter.—Firmer in value. Sales were made last week at from 3.80c. to 3.87½c., depending somewhat on kind and delivery. To-day's price is 3.87½c. There was a fair tonnage contracted for at low prices, and inquiries resulting from speculative and other sources sent prices upward. Zinc Ore developed a loss from extreme top price last reported; $27.50 per ton was paid for top grade.

Cincinnati. *(By Telegraph.)*

Office of *The Iron Age*, Fifth and Main streets, Cincinnati, February 20, 1901.

The general situation in Pig Iron shows considerable change from its status a week ago. In Foundry grades the change is less apparent, and what business there is doing is still of the retail kind. In this branch of the trade there is no change in prices, and while the market is still ragged with the conflicting views regarding values, it is nevertheless safe to say that in tone it is firmer. This firmness is given to the situation by the great increase in activity in Mill Irons. These have been the disorganizing element for the past month, and now that they are selling it adds an optimistic feeling to the whole market. Several round lots of Forge grades are reported, and there are inquiries now in which bespeak some good business shortly. The actual selling figure for this Iron is not known, but it is understood that it was under $9, Birmingham. Sales of Basic are also reported here which practically take that grade out of the market for the next six months. This Iron was sold on a basis of not higher than $11, Birmingham. Freight rate from Birmingham is $2.75 to this point; from Hanging Rock district, $1. We quote, f.o.b. Cincinnati:

Southern Coke, No. 1	$13.75 to $14.00
Southern Coke, No. 2	12.75 to 13.25
Southern Coke, No. 3	12.25 to 13.00
Southern Coke, No. 4	11.75 to 12.00
Southern Coke, No. 1 Soft	13.75 to 14.00
Southern Coke, No. 2 Soft	12.75 to 13.25
Southern Coke, Gray Forge	11.50 to 11.75
Southern Coke, Mottled	11.50 to 11.75
Ohio Silvery, No. 1	17.00 to 17.50
Ohio Silvery, No. 2	16.00 to 16.50
Lake Superior Coke, No. 1	15.25 to 15.75
Lake Superior Coke, No. 2	14.25 to 14.75
Lake Superior Coke, No. 3	13.25 to 13.75
Southern Basic	.... to 13.75

Car Wheel and Malleable Irons.

Standard Southern Car Wheel, chilling grades	$18.75 to $19.75
Standard Southern Car Wheel, No. 2	17.75 to 18.75
Lake Superior Car Wheel and Malleable	18.50 to 19.00

Plates and Bars.—No material change in the market. We quote, f.o.b. Cincinnati: Iron Bars, in carload lots, 1.40c., half extras; in small lots, 1.75c., with full extras; Steel Bars, in carload lots, 1.40c., with half Steel card extras; Base Angles, in carload lots, 1.50c. to 1.55c.; Plates, 1.55c. for ¼-inch and heavier; Sheets, No. 1, 1.95c.

Old Material.—Prices are unchanged and business has been normal for the season. Dealers' buying prices

per gross ton are, f.o.b. Cincinnati: No. 1 Wrought Railroad Scrap, $15; Cast Railroad and Machinery Scrap, $11; Old Iron Axles, $16.75; Iron Rails, $18; Steel Rails, rolling mill lengths, $13; short lengths, $12; Car Wheels, $15.

Pittsburgh.

Office of *The Iron Age*, Hamilton Building, Pittsburgh, February 20, 1901.

(By Telegraph.)

Pig Iron.—We can report a very active Pig Iron market, and Bessemer has gone up from 75c. to $1 a ton in price. Buyers seem to fear a shortage in Iron and are buying liberally, large sales of Bessemer having been made at as high as $14 at furnace. There is talk that Iron may go to $15 within a week or two. Some of the Valley furnaces that are running on Mill and Foundry are going on Bessemer, and this may relieve the situation somewhat. There is also an active demand for Mill Iron, and it is held at $13 at furnace, equal to $13.75, Pittsburgh. Foundry Iron is also more active, and the market is firmer. The tendency of the Pig Iron market is decidedly upward, and higher prices seem certain. We quote Standard Pig Iron, $14 to $14.25 at Valley furnace, equal to $14.75 to $15, Pittsburgh; Gray Forge, $13, Valley furnace, or $13.75, Pittsburgh. No. 2 Foundry Iron is $14 to $14.25, but prices will probably be higher. We note a sale of 10,000 tons of Standard Bessemer Iron at $14, Valley, for March and April shipment, and other sales aggregating 6000 to 7000 tons at prices ranging all the way from $13.50 to $14 at Valley furnace, the sales at the lower figures being made early last week. We also note sales of 12,000 to 15,000 tons of Forge Iron at $12.75 to $13 at Valley furnace, most of it at the higher price. A considerable tonnage of Foundry Iron is also reported to have been sold.

Steel.—In the Steel trade it is largely a matter of getting deliveries, instead of a question of price. We are advised that as high as $1.50 to $2 a ton premium has been paid for prompt shipment of Billets. Higher than pool prices is also being paid for deliveries of Sheet and Tin Bars. The Steel market is very active, there being a heavy demand, and the Steel mills are all full of tonnage. Both of the local Steel mills are practically out of the market as sellers. The local price of Billets as fixed by the pool is $19.75, delivered, but we are advised that sales have been made at $21 and higher. Steel for shipment over the East has been sold at Pittsburgh price, plus the actual freight. It is useless to quote pool prices, which no longer govern transactions.

Sheet and Tin Bars.—The market is very active, and from $1 to $2 a ton advance has been paid for prompt deliveries of both Sheet and Tin Bars.

Coke.—Coke, like everything else in the Iron trade, is extremely active, fully 90 per cent. or more of the ovens in the Connellsville region being active and practically all the output under contract. A leading Steel interest sent out telegraphic inquiries the other day for 10,000 tons of Coke for shipment at the rate of 15 cars a day over the next 35 days. More ovens in the Connellsville region are being blown in nearly every day, and higher prices for Coke seem probable. It is very difficult to get Coke for prompt shipment, for the reason, as stated above, that the product of the ovens is under contract. The minimum of the market on strictly Connellsville Furnace Coke is $1.75 a ton, and we hear that higher prices have been quoted.

Skelp.—The market on Skelp is active, and Grooved Iron has sold at $2 to $3 a ton higher than a week ago. We quote Grooved Iron at 1.65c. to 1.70c., Pittsburgh.

Steel Bars.—The absolutely minimum price on Steel Bars to-day is 1.35c., maker's mill, Pittsburgh. Some sellers are said to be quoting higher.

(By Mail.)

The Carnegie deal has had the effect of putting the Iron market on a much better basis, demand being larger and prices firmer, and on some lines higher. The Carnegie Steel Company last week bought 25,000 tons of Bessemer Iron from the Valley Furnace Association at $13.25, Valley, or $14, Pittsburgh. Negotiations are on for an additional lot of Bessemer Iron to be bought by the Carnegie Steel Company. It is also reported that the Carnegie Company have bought a round lot of Basic Iron, some 10,000 tons, and have taken the output of one of the Eastern furnaces of Chilled Basic Iron for four months. These purchases have put the Bessemer Pig Iron market fully $1 a ton higher, and it is probable that prices will stand further advance. The Bessemer Furnace Association will meet in a few days to act on some inquiries for some Iron, and may put the price at $13.50 or $14, at furnace. There is an extraordinary demand for Billets, and we are advised that as high as $2 a ton premium has been paid for spot shipment. Finished Material is in good demand and very firm. Prices on Steel Bars are $2 a ton higher, with several of the leading mills out of the market as sellers. The whole Iron trade is on a very satisfactory basis, due in a large part to the Carnegie deal. It is believed there will be more stability in prices and a better general condition in the Iron trade with the completion of the Carnegie deal than ever before. The whole Steel trade of the Central West will practically be under the control of one interest.

Ferromanganese.—We quote 80 per cent. Ferro at $62.50 in carload lots, delivered at buyer's mill.

Plates.—The large Plate mills have discouraged the attempt to put up prices, and for this reason it is not believed that the present price of 1.40c., Pittsburgh, on Sheared Plates, Tank quality, will be disturbed for some time at least. We note a continued good demand for Plates, and the leading interest are buying from other mills occasionally to help out on deliveries. Mills rolling the higher grades of Plates report a particularly active demand, especially for Fire Box Steel. We quote: Tank quality, ¼-inch and heavier, 1.40c.; 3-16-inch, 1.45c.; under 3-16-inch and above No. 10, 1.50c.; Flange or Boiler Steel, 0.1c. advance over base of Tank; Marine and Fire Box, American Boiler Manufacturers' Association specifications, 0.2c. advance over Tank; Still Bottom Steel, 0.3c. advance over Tank; Locomotive Fire Box Steel and equivalent specifications, 0.5c. advance over Tank, all f.o.b. Pittsburgh.

Sheets.—We note a continued active demand for Sheets, with prices very firm. Some of the mills are not promising deliveries inside of six weeks to two months, and in some cases for longer periods. Demand for Galvanized is particularly heavy and prices firm. An advance in prices of Black and Galvanized by the leading Sheet interest may be made any day. We quote No. 27 Black Sheets, box annealed, one pass, at 2.85c. to 2.90c.; No. 28, 2.95c. to 3c. Galvanized Sheets are 70, 10 and 5 per cent. off in carload lots, maker's mill.

Structural Material.—Demand continues extraordinarily heavy, and all the mills are full of work. There seems to be no doubt but that 1901 will be the most active year in the building trade ever known. The American Bridge Company are booking an enormous tonnage and are running all their bridge plants to full capacity. We quote: Beams and Channels, up to 15-inch, 1.50c.; over 15-inch, 1.60c.; Angles, 3 to 6 inches, inclusive, 1.40c.; over 6 inches, 1.50c.; under 3 inches, 1.25c.; Zees, 1.50c.; Tees, 1.55c.; Steel Bars, 1.25c. to 1.35c., half extras, at mill; Universal and Sheared Plates, 1.40c., all f.o.b. Pittsburgh.

Steel Rails.—We may state that the Steel Rail mills have close to 1,700,000 tons of Rails booked for 1901 delivery. The report is again current that as soon as the Carnegie deal is out of the way the Rail mills will meet and advance prices $1 or perhaps $2 a ton. We quote at $26, at mill, for standard sections.

Merchant Steel.—Only a fair tonnage is being placed. The market is reasonably firm. We quote: Plow Slabs, ¼-inch and heavier, at 1.60c., base; Tire Steel, 1.35c. to 1.40c.; Toe Calk, 1.70c. to 1.75c.; Open Hearth Machinery, 2c., base; Open Hearth Spring, 2c., base; Hammered Lay Steel, 3c. to 3.25c.; Rolled Lay Steel, 2.75c. to 3c.; Cold Rolled and Cold Drawn Shafting, 55 per cent. off in carload lots; 50 per cent. in less than carload lots, delivered in base territory. Tool Steel, 7c. and upward, according

to quality. On Tool Steel freight is allowed east of the Mississippi River.

Skelp.—We may note a better demand for Iron Skelp and prices are a trifle higher. We quote Grooved Iron Skelp at 1.50c. to 1.55c.; Sheared at 1.55c. to 1.60c.; Steel Skelp, Grooved and Sheared, is held at 1.35c. to 1.40c., Pittsburgh, terms four months, or 2 per cent. off for cash in 30 days. We note sales of some 4000 tons of Grooved Iron Skelp on the basis of 1.50c., delivered, f.o.b. Pittsburgh.

Tubular Goods.—There is a good demand, tonnage so far this month being very satisfactory. Prices are firmly held by the mills, but in exceptional cases are slightly shaded by jobbers. Some irregularities in prices of Boiler Tubes are reported. Prices to consumers in carload lots are as follows:

Merchant Pipe.

	Per cent. Black.	Per cent. Galvd.
⅛ to ½ inch and 11 to 12 inch	61	48
¾ to 10 inch	68½	56

Casing, Random Lengths.

	S. & S.	I. J.
2 to 3 inch	58	53½
3½ to 4 inch	63	59
4½ to 12½ inch	65	61½

Casing, Cut Lengths.

	S. & S.	I. J.
2 to 3 inch	53½	49
3½ to 4 inch	59	55
4½ to 12½ inch	61½	57½

Boiler Tubes.

Steel	Up to 22 feet. Per cent.
1 inch to 1⅝ inch and 2¾ inch to 5 inch, inclusive	68½
2 inch to 2½ inch, inclusive	63
6 inch and larger	62
Iron.	
1 inch to 1½ inch and 2½ inch	49½
1¾ inch to 2¼ inch	45
2¾ inch to 13 inch	57

Jobbers are quoted 5 per cent. or more lower than the above prices.

Coke.—Last week, out of 21,423 ovens in the Connellsville region, 18,254 were active and 3169 idle, the output having been 208,794 tons. There is a better demand for Coke than for some time, and Connellsville Furnace is firmly held at $1.75 and Foundry at $2.25 a ton. Main line brands of Furnace Coke are quoted at $1.50 to $1.65 and Foundry at $1.75 to $2 a ton at oven.

Iron and Steel Scrap.—There is a better demand for Scrap and prices are firmer. Some of the larger consumers of Scrap that have been out of the market for some time have recently been buyers. We quote: No. 1 Railroad Wrought Scrap, $14.50 net ton, f.o.b. Pittsburgh; Old Iron Rails, $18.50 to $19, Pittsburgh, and $19.50, Valley, gross ton; Old Steel Rails, $14 to $14.50, gross ton; Busheling Scrap, $12 gross ton; Turnings, $7 net ton; Cast Iron Borings, $6 net ton; Old Horseshoes, $13 gross ton; Heavy Melting Stock, $13 to $13.50 gross ton.

Birmingham.

BIRMINGHAM, ALA., February 18, 1901

Since last report a very radical change has occurred in the conditions of the Iron market. Not only has the inquiry largely increased, but transactions have increased both in volume and in number. One large interest report their sales so far this month as about double the total sales for last month. Another interest report sales so far during February as greater in volume than their expected output. All report a better feeling and a much better trade. It may be a coincidence only, but it is the fact that the demand sprang up when the great Steel combination gave certain promise of successful accomplishment. The demand was largely for Forge Iron. Prices on certain grades were advanced 25c. per ton from the lowest figures of the preceding week, while on other grades they were more firmly held. Gray Forge, which sold the preceding week as low as $8.75, sold at $9.00, $9.25 and, in a small way, at $9.50. One order for 2500 tons at $9 was declined. The seller would have been glad to enter this order the preceding week. No. 4 Foundry the first half of the week went begging for a buyer at $9.25. Subsequently it was in demand at $9.25, and there were sales at $9.40 and $9.50. No. 3 Foundry at $10 sold to a moderate extent, as also did No. 2 Foundry at $10.50. It has been a long time since a report of sale of Basic Pig has been made; but there was one transaction last week of 10,000 tons for account of a large interest at Pittsburgh. The price is withheld from publication, but it is understood that it was around $10.

The demand has been general and not confined to any one line. Those who have been simply feeling the pulse of the market heretofore took their medicine and paid current market price. The large majority of the orders were for as nearby deliveries as could be obtained. The sudden change in the course of the market has imparted confidence to the sellers, who regard the transactions of last week as simply the vanguard of that active buying movement so long anticipated and so long delayed. A moderate hardening in values is expected, and also a steady, healthy market. There has been, proportionately, a corresponding increase in the demand for Steel, and there was no difficulty in obtaining an advance of $2 per ton over previous transactions. Steel Billets sold at $20. The sales of Steel were to the domestic trade. The bulk of sales was to New England purchasers. There are now five furnaces in commission at the Steel mill, and this number will be increased this week. The blooming mill is now in fine "tether," and the past week eclipsed all previous records in the amount of accomplished work.

The Wire and Nail mills of the Alabama Steel & Wire Company have been running double turn. At the Semet-Solvay by-product plant they are making rapid progress on the addition they are erecting to increase their capacity. The improvement in Ensley, heretofore noted, continues unabated. Buildings are constantly going up, and the population is increasing faster than are the accommodations to shelter them. Reports are common as to new industries to locate there. An active correspondence is being conducted to that end, with a very favorable outlook for successful termination. An active campaign in the interest of Ensley has been begun, and will continue until it will be one of the best advertised towns in the South.

At North Birmingham the Southern Cement Company will probably begin operations this week, as their machinery will all be in place. They are capitalized at $50,000, with the privilege of increasing it to $500,000. At first they expect to turn out only 500 barrels per day; but, anticipating that an enlargement will soon be necessary, they have provided for an increase to 5000 barrels when necessary. So far the cement made from the furnace slag has given great satisfaction, and the Ensley mill had, when it was destroyed by fire, a larger demand than it could supply.

The addition to the offices of the L. & N. R. R. and the Southern Express Company, at the Union Depot, is nearing completion, as is also the fine store of the Milner-Kettig Company. A little more life is being enthused into the business of the contract shops, and they are as a rule full of work, much of it being for local account.

Complaint is not infrequent of the great difficulty in obtaining cars with promptitude to move proffered tonnage. Particularly is this the case with Coal and Ore. The report of the Alabama Car Service Association shows that over 40,000 cars were handled by it in January.

In Coal, the production is kept fully up to capacity, and a ready market stands prepared to absorb all that can be given it.

Money is plentiful in the banks, confidence seems to pervade all classes, and there are evidences on every hand that money is being invested in permanent improvements.

Walter Kennedy, engineer and contractor of Pittsburgh, has been engaged to superintend the erection of the steel plant and blast furnace which are to be built by the Cramp-Ontario Steel Company, on Georgian Bay, Ont. Mr. Kennedy has a very large amount of blast furnace and other work on hand, and is equipping a number of blast furnaces with his recently patented design of skip.

Belgian Iron Market.

BRUSSELS, February 10, 1901.—The situation has grown very much worse in Belgium since our letter dated December 15, published in *The Iron Age* of January 3. There is a scarcity of work both in the home markets and in the export trade. The construction shops, the Bolt works, &c., in fact all the large consumers of material, are short of orders. This is true to such an extent that one of the principal construction shops of this country has dismissed many workmen, and the others are only running seven hours per day. On the other hand, the German mills are penetrating into Belgium, and even to Liége and Charleroi, at the very doors of our rolling mills, selling consumers at prices which the Belgians cannot touch. This German competition is felt keenly too in the export trade, which is made possible through the relatively low prices of fuel in Germany and the premiums on export shipments. A case is cited of 7000 tons of Rails captured by a German mill for the Netherland Railroad Company owing to a bonus or premium of 3 marks per ton on Coal, the same amount on Pig Iron and the same amount on Steel, making a total of 9 marks per ton.

It is not surprising that under these conditions the German mills can beat the Belgians even in the lettings for the Belgian State railroads. The latter until recent times, without any scruple, turned the orders over to foreigners, even if the difference between their price and that of the Belgians was not more than a few cents per ton. However, owing to the vigorous protests of Belgian manufacturers, and in view of the fact that the Germans at home systematically throw out the bids of Belgian makers, the Minister of Railroads has decided to change his methods, and now reserves nearly all orders for the national mills, simply using the German offers to force down the prices of the Belgian mills. This, perhaps, is not straightforward, either so far as the Germans or the Belgians themselves are concerned.

It is particularly the high price of Coal which places the Belgians in a position of inferiority as compared with their German competitors. The Coke Syndicate persists in demanding 25 francs per ton for 1901 deliveries of Coke, when in 1900 the price was only 22 francs, and when the German blast furnaces obtained their supply at 17 marks, which is about equal to what is being paid in England. The result is that the Belgian blast furnaces refuse to commit themselves for the whole of the year, and draw their supply only from day to day in the open market. They declare that they will not contract at more than 20 francs, and the belief is expressed that the Coke Syndicate will soon come down to that figure. In the meantime the rolling mills have no basis to work on so far as Pig Iron prices are concerned, a fact which contributes to throwing business into confusion. Coal itself is even dearer. However, beginning with February 1, it is to be 2 to 3 francs lower, according to quality. Still "run of the mine," in spite of this lowering of price, is selling still at 20 francs, f.o.b. colliery, "Fines" at 18 francs, and Dust, 16.50 francs, to which there must be added about 3 francs per ton for freight; so that "Fines," for example, cost 21 francs delivered at the mills. Now German and English collieries have during the last few days offered excellent "Fines" at 18.50 francs, delivered. Therefore the reduction granted is not sufficient and must soon be followed by a further lowering in price of at least 2½ francs. However that may be, at present costs, there are perhaps only three plants in Belgium which work without losing money at current low selling prices.

As a matter of fact, No. 2 Bars have sold as low as 135 francs, f.o.b. Antwerp. At this price the mills are losing money. In order to understand the situation the following explanation may be made. Selling agents and other intermediaries, who are the curse of the Iron market in this country, very adroitly exploit the lack of understanding and the suspicions which exist among the Belgian rolling mills. They place before every mill the same order and encourage the belief that a cut has been offered to them. Producers fall into the trap. Besides it must not be forgotten that these agents are often the correspondents of Belgian and foreign newspapers, and that they publish statements favorable to their position, suppressing and modifying facts.

A number of mills have closed entirely, and others have dismissed a considerable number of their employees, while nearly all are idle two or three days per week. Everywhere the talk is of banking down blast furnaces and shutting down mills. The production in 1901 will thus be very much less than that of 1900, which, in turn, was lower than that of 1899. For Pig Iron the following is the output during the past ten years:

Belgian Production of Pig Iron.

	Metric tons.		Metric tons.
1891	684,126	1896	959,414
1892	753,268	1897	1,035,037
1893	745,264	1898	979,755
1894	818,597	1899	1,024,576
1895	829,234	1900	*950,000

*Approximately.

It is necessary, therefore, to go back to 1895 before we strike an output as low as that of 1900, and that in spite of the prosperity of the first half of the latter year. At the same time our importation of foreign Pig Iron has fallen from 359,720 tons in 1899 to 305,628 tons in 1900.

The results of our exports have been very little satisfactory in 1900. Here, too, we must go back to 1895 before we encounter as poor a result as is shown in the following table:

Belgian Exports of Iron and Steel.

	Metric tons.		Metric tons.
1891	421,947	1896	668,181
1892	414,906	1897	685,628
1893	406,967	1898	718,528
1894	498,430	1899	704,085
1895	556,855	1900	592,890

The following table shows the details of exports during the last three years:

Belgian Exports of Iron and Steel.

	Metric tons. 1900.	Metric tons. 1899.	Metric tons. 1898.
Pig Iron	8,282	13,501	16,789
Castings	17,007	29,803	27,416
Old Material	43,858	32,504	23,020
Intermediate Products	1,834	2,543	1,325
Finished Iron and Steel	511,909	625,734	649,978
Totals	592,890	704,085	718,528

It will be observed that the falling off is most marked in Finished products.

What is even more disquieting for the Belgian Iron industry is that the diminution of exports of Finished Iron and Steel is accompanied by a marked increase in imports of these same products, as will be noticed from the following table:

Belgian Imports of Iron and Steel.

	Metric tons. 1900	Metric tons. 1899.	Metric tons. 1898.
Pig Iron	305,628	359,720	317,828
Castings	4,006	2,738	7,282
Old Material	62,573	61,510	52,297
Intermediate Products	21,118	14,312	30,746
Finished Products	89,226	78,037	62,725
Totals	482,551	516,317	470,878

The imports, therefore, of Finished products have risen from 62,725 tons in 1898 to 89,226 tons in 1900. That is to say, an increase of 42 per cent., while the figures for exports have fallen off 17 per cent. The gross result, therefore, is that the tonnage which has been taken from the Belgian mills is approximately 150,000 tons.

The Beam mills have particularly suffered, since from 1898 to 1900 the exports have fallen from 122,717 tons to 78,783 tons, while imports have increased from 1191 tons to 2344 tons. In this same period exports of Rails have fallen from 82,004 to 64,223 tons, while the imports have risen from 468 tons to 1943 tons. The exports of Sheets dropped from 80,258 tons to 74,400 tons, the imports increasing from 10,842 tons to 14,742 tons. The exports of Iron and Steel Merchant Bars and of different Rolled products fell from 271,710 tons to 190,530 tons, while the imports rose from 21,231 tons to 31,008 tons.

The United States have not taken a conspicuous part in this movement. Below is a summary of the imports during the last three years from your country:

	Metric tons. 1900	Metric tons. 1899.	Metric tons. 1898.
Pig Iron	12,259	11,552	7,250
Castings	42	52	44
Old Material	1,653	340	236
Billets	101	....	327
Steel Wire	1,022	232	22
Finished Shapes	478	691	386
Forgings	67	92	42
Galvanized Iron and Steel	2	3	6
Totals	15,624	12,962	8,313

They therefore contributed to the total imports of the years 1898, 1899 and 1900, 1.76 per cent., 2.51 per cent. and 3.24 per cent. respectively. Although this amounts to a doubling in three years, the progress ought to have been very much more considerable. I believe that in spite of the drop in prices in Belgium, the United States ought to furnish much more Pig Iron, Billets, Old Material and Wire than they do.

The following are some of the prices ruling in Belgium at this time: Mill Iron, 60 francs, f.o.b. mill; No. 4 Foundry Iron, 78.50 francs, f.o.b. mill; Thomas Iron, 80 francs; Scrap, 65 francs; Billets, 105 francs; Blooms, 100 francs; Steel Wire for Nails, 150 francs, net price at mill. Steel Wire is admitted under the drawback clause for re-export as Nails.

German Iron Market.

ESSEN, January 28, 1901.—The position of the market has changed very little since my last report. In some branches orders are coming in a little more actively, but the general conditions must still be pronounced to be unsatisfactory.

There is nothing to report in regard to the Ore market Deliveries continue active and the production of the mines is easily placed, since the blast furnaces are running full. Contracts run at least to the end of 1901, so that there is no opportunity to utilize the low offers which are made, particularly on the part of the Spanish mines. There has been no business in Pig Iron except for occasional supplementary classes of Foundry Iron. Deliveries are fairly called for, and no serious accumulation of stocks has taken place at the merchant furnaces. So far as the accumulations at those works which convert their own Pig Iron is concerned we have no means of judging, but it may be assumed that considerable Iron has been piled up at these plants. Therefore, if the hoped for recovery in the Iron industry were to come there would be no danger for a prolonged period of any scarcity of Pig Iron. Under these circumstances prices are naturally entirely nominal. We quote: Bessemer, 102 marks; Thomas, 90.20 marks; Spiegeleisen, 110 marks; Special Mill Iron, 90 marks; Foundry Iron No. 1, 102 marks; No. 3, 98 marks; Luxemburg Foundry No. 3, 78 marks; English Foundry No. 3, 80 marks, and Luxemburg Mill Iron, 102.50 marks.

The situation is unchanged in Old Material. The requirements of the mills are small, offerings are heavy, and prices are weak. Asking prices for Open Hearth Scrap, 47 marks; Heavy Iron Scrap, 51 marks; Fresh Heavy Rolling Mill Scrap, 58 marks; Cast Scrap, 58-60 marks; Old Iron Rails, 61 to 62 marks, all f.o.b. consuming plants.

After a brief period of greater activity there is complete stagnation so far as the home market is concerned in Steel. For export some orders have been secured lately at low prices. The Billet Syndicate has fixed new prices as follows: Ingots, 100 marks; Blooms, 105 marks; Billets, 107 marks; Slabs, 111 marks per ton, f.o.b. Ruhrort, Rothe Erde and Diedenhofen. For the contracts for 1901 deliveries placed at former periods with the syndicate one-half the difference is deducted, so that, for instance, a consumer who bought Billets at 135 marks for delivery during 1901 from the syndicate, now pays only 121 marks. For contracts which ought to have been delivered in 1900, but which are still undelivered, an allowance of 40 per cent. of the difference between old prices and new prices is made. Besides this the Steel Syndicate, in co-operation with the Raw Material Syndicates, accord to the mills further reductions on Steel required to fill export orders. These deductions are arranged for every particular case according to circumstances. There is no business whatever in Muck Bars.

The Bar Iron market is very irregular, but work is becoming slightly better in some cases. Prices are constantly declining. Steel Bars are quoted 120 to 125 marks. Bar Iron can be purchased at the same price because the works accept orders even at a direct loss in order not to stop operations. The official price on Bands and Hoops has been made 140 marks, but a good deal of cutting is going on. The Beam business has been dull for a long time, and the Beam Syndicate has therefore concluded not to take any fresh orders until further notice. All the works have several months' work on their books, but specifications are being withheld, and no improvement is expected before the resumption of building operations.

The Pipe business is in a very poor condition, more particularly so far as the Gas branch is concerned. In Boiler Tubes the Mannesmann Company, who do not belong to the syndicate, are conducting a serious onslaught upon prices.

A pleasant exception to the rest of the Finished trade is the Plate trade. In this branch, after prolonged withholding of orders, the requirements have become so urgent that the works cannot always deliver promptly. In Sheets the position remains unchanged, a syndicate not having been formed in spite of all predictions to that effect. In other lines of work there has been little change. Those plants which make Railroad Material are still amply employed, and the same is true of the machine shops and Bridge works, although pressure is not as great as it was a year ago.

New York.

Office of *The Iron Age*, 232-238 William street,
NEW YORK, February 20, 1901.

Pig Iron.—During the earlier part of the week there was a good deal of pressure to sell on the part of makers of Foundry Iron, which rather frightened buyers. There is some talk also of diverting into the home trade Iron originally sold for export, and even of returning of Iron which has reached the other side. Pipe founders have bought some fair blocks, aggregating about 5000 tons, but otherwise the market is quiet. We quote: Lehigh, Schuylkill and Virginia Irons, No. 1, $16.50 to $17.50; No. 2 X, $15 to $16; No. 2 Plain, $14 to $14.50; Gray Forge, $14 to $14.50; Tennessee and Alabama brands, No. 1 Foundry, $15 to $15.25; No. 2 Foundry, $14.25 to $14.50; No. 1 Soft, $15 to $15.25; No. 2 Soft, $14.25 to $14.50; No. 3 Foundry, $13.75 to $14; No. 4 Foundry, $13.25 to $13.50; Gray Forge, $12.75 to $13.

Cast Iron Pipe.—During the week the Water Department closed for a lot of 500 tons, while the Troy contract for about 2000 tons was also closed. The low figures, indicating a contest between the consolidated company and the outside shops, continue in this district. Boston opens bids to-day for about 4000 tons. We continue to quote $24 per gross ton for 8-inch Pipe, at tidewater.

Steel Rails.—A number of smaller contracts for the South have been closed. Generally speaking, the market is quiet. We quote $26 for Standard Sections, and $32 to $32.50 for Girder Rails. We quote Spikes, 1.50c. to 1.60c.; Spice Bars, 1.25c. to 1.30c.; Square Track Bolts, 2.05c. to 2.10c., and Hexagon Bolts, 2.15c. to 2.20c., at mill.

Finished Iron and Steel.—The American Bridge Company have closed a contract for 28,000 tons of Bridges for the New York Central Railroad, probably the largest single contract of this character ever taken. Besides this a considerable amount of structural work has been placed. The Bar market is stronger and prices have been advanced, the Western mills being the leaders. We quote as follows at tidewater: Beams, Channels and Zees, 1.65c. to 1.70c.; Angles, 1.30c. to 1.40c.; Tees, 1.65c. to 1.75c.; Bulb Angles and Deck Beams, 1.90c. to 2c.;

Universal Plates, 1.58c. to 1.60c.; Sheared Steel Plates are 1.58c. to 1.60c. for Tank, 1.68c. to 1.70c. for Flange, 1.78c. to 1.90c. for Fire Box. Charcoal Iron Plates are held at 2.25c. for C. H. No. 1, 2.75c. for Flange and 3.25c. for Fire Box. Refined Bars are 1.45c. to 1.50c.; Common Bars, 1.35c. to 1.40c.; Soft Steel Bars, 1.45c. to 1.50c., and Hoops, 1.90c. to 2c., base, on dock.

Metal Market.

Office of *The Iron Age*, 232-238 William street, New York, February 20, 1901.

Pig Tin.—There was a speculative movement in spot during the early portion of the week and prices advanced considerably. During yesterday and to-day, however, prices have sagged, as the manipulators were not active in their purchases. As a result of all, prices have made a net advance during the week of nearly ½c. per lb., closing to-day 26.90c. to 27c. for spot, 26.90c. to 26.95c. for February, 26.30c. to 26.75c. for March and 26c. to 26.25c. for May. Consuming business was very slow. The London market fluctuated slightly and closed lower to-day, with £121 17s. 6d. for spot and £117 for futures. The discount on futures still hovers in the neighborhood of £5.

Copper.—The market is without change, purchasers being scarce, and especially as to large lots. Prices are unchanged, but the tone is just a little stronger, as the quoted prices are being strictly adhered to, the concerns who were shading prices being sold out. Lake Superior Ingot is quoted 17c., and Electrolytic and Casting stock 16⅝c. The exports for the first three weeks of this month show up very poorly. It is estimated that they were below 5000 tons, while last year the total for the month was 13,653 tons. The London market to-day closed £71 2s. 6d. for spot, and £71 13s. 9d. for three months' futures. Best Selected is quoted £77 15s., being 5 shillings lower than last week.

Pig Lead.—A slight improvement in business has been noticeable during the last week. Consumers, although not purchasing freely, are buying right up to their needs. Prices are unchanged, the American Smelting & Refining Company still quoting 4.37½c for Desilverized, in lots of 50 tons and more, f.o.b. New York, and 4.32½c., f.o.b. St. Louis. Chemical is quoted at 4.20c. and Soft Missouri at 17½c. The London market has been very weak and declined to £14 15s. Negotiations looking toward the consolidation of the American Smelting & Refining Company and M. Guggenheim's Sons have been brought to a temporary standstill, an injunction having been brought against the proceedings by several of the minority stockholders in the former company. It was expected that this injunction would be dissolved yesterday, but the hearing was postponed until March 2. It is expected in the trade that at that time it will be promptly disposed of and the deal will go through which is now being regarded as an absorption of the American Smelting & Refining Company by the Guggenheims, it being an open secret that the latter interest have the upper hand in the deal.

Spelter.—Toward the close of last week the market was firm, owing to a speculative movement which was instituted in the West. While the interests who were at the bottom of this may have sold a few carloads, their transactions had only a temporary effect on the market. Since then the market was again overspread with dullness, and freer offers from the West were the result. At the close to-day the market is quoted at 3.95c. to 4c. for Spot and May. St. Louis is dull, at 3.75c. to 3.87½c. London is unchanged, at £17 12s. 6d.

Antimony—Is unchanged. Hallett's is quoted 9¼c. and Cookson's 10¼c. Prices named for other brands are 8¾c. to 9c.

Nickel.—There is no change in the situation, the metal being scarce at 55c. to 60c. for ton lots.

Quicksilver—Has not been changed, the prices quoted here remaining $51 per flask of 76½ lbs. in lots of 50 flasks or more. The London market is unchanged at £9 2s. 6d.

Tin Plate.—A good business is reported. The American Tin Plate Company are quoting on a basis of $4.19 per box of Standard 100-lb. Cokes, f.o.b. New York, and $4 f.o.b. mill. These prices have been named to hold until June 1.

John Stanton reports the Copper production in the United States and of the foreign reporting mines and United States exports as follows, in gross tons of 2240 lbs.:

	Reporting mines.	Outside sources.	Total U.S. product.	Product foreign mines.	U. S. exports.
First half 1895.....	70,612	9,100	79,712	42,484	34,215
Second half 1895...	84,885	6,600	91,485	43,674	30,507
Total 1895.....	155,497	15,700	171,197	86,178	64,722
First half 1896.....	94,180	7,200	101,380	42,255	58,216
Second half 1896...	95,314	7,200	102,514	43,941	67,287
Total 1896.....	199,494	14,400	203,894	86,196	125,503
First half 1897.....	103,651	5,000	108,651	44,263	64,870
Second half 1897...	100,555	6,900	107,455	44,007	64,340
Total 1897.....	204,206	11,900	216,106	88,270	129,210
First half 1898.....	112,687	7,800	120,487	40,880	68,284
Second half 1898...	103,535	10,250	113,785	43,674	76,831
Total 1898.....	216,222	18,050	234,272	84,554	145,115
First half 1899.....	111,987	12,500	124,487	43,629	56,460
Second half 1899...	118,818	18,900	137,719	45,611	63,351
Total 1899.....	230,806	31,400	262,206	89,240	119,811
First half 1900.....	114,177	20,400	134,577	43,153	90,747
Second half 1900...	113,810	20,400	134,104	46,278	69,335
Total 1900.....	227,987	40,800	268,681	89,431	160,082
January, 1901.....	19,279	3,400	22,679	5,910	10,003

PERSONAL.

Gentry Hillman, superintendent of the Alabama Consolidated Coal & Iron Company's furnace, at Florence, Ala., has resigned.

Charles I. Gates, son of John W. Gates of the American Steel & Wire Company, has paid $52,000 for a seat in the New York Stock Exchange, being the highest price on record for membership in that institution.

Albert L. Swett has resigned his position as manager of the Medina, N. Y., plant of the Central Foundry Company, owing to the increasing demand on him as president of the A. L. Swett Iron Works and the Swett Electric Light & Power Company. He is succeeded as manager by Paul G. Rahe of New Jersey.

W. Aubrey Thomas of Niles, Ohio, has purchased a controlling interest in the Jenifer Furnace property in Alabama.

F. P. Norris has been appointed manager of the works of the Phoenix Iron Works of Phoenixville, Pa.

William C. Evans has resigned his place in the office of the Seaboard Steel Casting Company, and has accepted a position with the American Steel Casting Company, at Alliance, Ohio.

J. J. Gray, superintendent of the Tennessee Coal, Iron & Railroad Company's furnaces, at Sheffield, Ala., has resigned from March 1 to accept a similar position with the Sloss-Sheffield Company at Sheffield.

Phillips Isham of Rogers, Brown & Co., New York, has returned from Europe.

P. J. Sweeney of Youngstown, Ohio, has been appointed superintendent of the rolling mill department of the Sharon Steel Hoop Company's Works, at South Sharon, Pa., which will go into operation about March 20.

Prof. Palmer C. Ricketts has been elected president of the Rensselaer Polytechnic Institute at Troy, N. Y., in succession of John H. Peck, resigned. Professor Ricketts has been for several years director of the institute.

O. T. Adams, superintendent of the Shelby Steel Tube Mill at Ellwood City, Pa., had an operation performed on his leg, which he had broken some time ago. He can now bend his leg and is improving very rapidly.

Samuel A. Roelofs is the new superintendent of the Hartman Mfg. Works at Ellwood City, Pa. He is filling the vacancy caused by the resignation of H. P. Richardson.

Tom L. Johnson has been nominated for Mayor of Cleveland, Ohio, in the Democratic primaries.

The New York Machinery Market.

Office of *The Iron Age*, 232-238 William street,
New York, February 20, 1901.

Reports savoring of buoyancy are to be heard in all quarters of the market. Machine tool merchants and builders even characterize the business of the week as brisk. For heavy machine tools there is said to be an excellent demand, and the builders are commencing to name long deliveries. It is said that the principal builders of planers are naming April and May for the smaller sizes and July and August for sizes from 72 inches and upward. Deliveries on heavy boring mills, radials, and in fact all large tools are now something like six months distant from the date of order. We hear of orders for large special tools where delivery of a year has been named.

In the smaller types of ordinary tools the demand has been so good during the week that sellers are holding more firmly to their prices. It is mentioned that a large portion of the week's business has come from the New England States, and from Connecticut a number of very good inquiries have come. We have been unable to ascertain that any of the large deals which are pending have been closed or partially so. The Pennsylvania Railroad are said to have been shopping about for a number of tools.

Navy Yard Purchases.

There is a fair amount of machinery which will soon be purchased by the Navy Department. On February 26 bids will be opened at the Bureau of Supplies and Accounts, Navy Department, Washington, D. C., for a quantity of machinery for the Pensacola, Portsmouth and Washington navy yards. The proposals for the Pensacola Yard include:

One 12-inch pillar shaper.
One 16 x 16 inch by 4 foot planer.
One belt driven tumbling barrel.
One No. 1 rod pin and dowel machine, to turn from ¼ to 1¼ inches.
One electric glue pot of 1 gallon capacity.
One electrically driven shop saw, to cut off stock 4½ inches diameter and carry 12-inch saw blades.
One electrically driven direct connected metal sawing machine, for cutting beams, channels, &c.
One electrically driven direct connected boiler makers' drill.
One steam locomotive.
Two platform cars.

Following are the items for the Portsmouth Yard:

One 25-ton four-motor electric traveling crane.
Two 7-ton three-motor electric traveling cranes.
One universal gear molding machine.
About 60 tons of round iron and steel and rivets; also a quantity of brass and copper goods and corrugated steel sheets.

For the Washington, D. C., Navy Yard are required:

One rectangular surface condenser mounted over combined air and circulating pump.
One boiler plant, to consist of three wrought steel sectional boilers, with mechanical stokers, smokestack, induced draft system, flue, heater, pumps and piping, all to be provided and erected as below specified. The normal capacity of these boilers is to be 354 horse-power (118 horse-power each), based on the evaporation of 30 pounds of water per horse-power per hour from 100 degrees at 70 pounds pressure. The working pressure is to be 150 pounds gauge. The three boilers are to have a total of about 3560 square feet heating surface and 79.5 square feet of grate surface.

Stack.—In Connection with these boilers there is to be provided and erected by the contractor a self supporting steel plate chimney 60 inches in diameter by 50 feet high, above floor.

Flue.—A flue connection of No. 10 black iron is to be fitted, connecting the boilers to the chimney. The flue is to be erected complete and covered with 1½ inch thickness of best quality nonconducting covering.

Induced Draft System.—There is to be an induced-draft system, consisting of a steel plate exhauster, size 110 inches, with three-quarter steel plate housing. Fan to have an extended shaft, fitted with water-cooled journals, and to have a direct connected horizontal engine 6 x 6 inches.

Feed Pumps.—Two boiler feed pumps, each 7½ x 5 x 6 inches, duplex pressure pattern, brass fitted, are to be provided and installed, with all piping complete. Each of these pumps is to be of ample capacity to take care of 354 boiler horse-power.

Feed Heater.—One feed water heater, for 354 boiler horse-power, is to be provided and installed, with all piping complete, for both steam and feed water connections. This heater is to contain at least 113.3 square feet of effective tube heating surface.

Stokers.—The boilers are to be equipped with mechanical stokers and smokeless furnaces of the best approved design. This equipment will consist of extra heavy half fronts, grate bars, bearer bars, dumping grates and anchor bolts, tie rods, special fire-clay tile for the hot air chamber, stoker shaft and engine of sufficient power for operating the stokers. Grates to consist of horizontal overlapping bars, extending from side to side of furnace, carried on side bearers; side bearers to extend from throat of hopper to the rear of ash pit. The stokers are to be operated by a steam engine of approved design, placed either at the end or in the middle of shaft, which is to extend in front of all boilers; engine to be connected to shaft by means of a worm gear. The stokers will be so arranged that feed may be operated at will without interrupting rotation of stoker shaft.

There are also required about 100 tons of round, flat and square steel and about 6250 feet of leather belting, as well as a small quantity of ingot tin, copper and zinc.

It is rumored here that the Baldwin Locomotive Work of Philadelphia intend building outside of the city, and are looking about for a suitable site. They have been inspecting property in Maryland.

By the Lansing Wheelbarrow Company of Lansing, Mich., we are informed that they have just erected buildings for the manufacture of steel drag and wheel scrapers. These buildings are now being fitted out for operation. The company are in the market for machinery to be used for this purpose. The principal lines needed include boring machines, punch and shears and a similar class of machine tools, and the necessary equipment of shafting, pulleys, hangers, belts, &c., for the entire plant. A. C. Stebbins is secretary and treasurer of the company.

There is a report going the rounds to the effect that the Bath Iron Works of Bath, Maine, are to enlarge their works considerably, or else build a new plant. It is said that an extension of the plant is necessary, owing to the large orders which are on the company's books and the great activity in the yards. It will be recalled that this company were recently awarded the contract for the United States Battle Ship No. 15, which is to be named the "Georgia." The contract price was $3,590,000.

The Fore River Ship & Engine Company, who have been buying machinery very freely of late, have just filed articles of incorporation with the Secretary of State of New Jersey. The capital stock of the company is $4,000,000, one-half of which is to be preferred stock limited to 7 per cent. non-cumulative semiannual dividends. The incorporators are Arthur Wainwright, Owen D. Young, Charles F. Weed, Robert Wainwright and James B. Dill.

It is reported in the street that the Steamobile Company of America are about to purchase a good lot of machinery. The company have recently purchased the plant of the Trinity Cycle Mfg. Company, formerly of Worcester, Mass., and Keene, N. H. The plant at Keene will be refitted by the Steamobile Company so that it will suit their requirements in the building of steam road wagons. The capital stock of the company is said to be $500,000, of which $150,000 is paid in.

It is said that machinery is to be purchased by the Wilmot & Hobbs Mfg. Company of Bridgeport for the equipment of an extension, which is being built to the works. The new building for which a contract for the structural steel has just been let to Jones & Laughlins of Pittsburgh, is to be 232 x 60 feet.

Water Works Machinery.

The awarding of the contract for constructing water works at Red Bank, N. J., has brought to light a scheme looking for the control of the water systems of all of the seaside towns of Monmouth County, N. J., including Long Branch, Sea Bright, Atlantic Highlands, Navesink Highlands, Eatontown, Red Bank, Elberon, Deal, Spring Lake, Allenhurst, Ocean Grove, Asbury Park, Belmar and Manasquan. The Tintern Manor Water Company of Monmouth Country are working the scheme. They awarded the $1,000,000 contract for the Red Bank works to Flood & Sherrill of Sandy Hill, N. Y. The plan of the new company is to acquire all of the Monmouth County plants and work them collectively as much as possible. This will necessitate several large new pumping stations, as well as a series

of stand pipes. C. D. McGuire of New York is interested in the company, as are also C. C. Higgins of Pound Ridge, N. J., and J. J. Jermyn of Scranton, Pa.

The bids for the 15,000,000-gallon pumping engine for Trenton, N. J., are to be opened on March 16.

On March 2 the proposals for the 10,000,000-gallon pumping engines for Auburn, N. Y., will be opened.

R. H. North of Kenosha, Wis., states that bids are to be opened on April 2 for a 4,000,000-gallon pumping engine. Plans and specifications are now obtainable from Mr. North. Piping supplies and accessories are also to be purchased.

The Barr Pumping Engine Company of Germantown, Pa., were awarded the contract for the 12,000,000-gallon high duty crank and fly wheel pumping engine which is to be installed in the water works at Hamburg, Pa.

Plans are being drawn for a new water plant which is to be built at Springfield, N. J. We have heard that it is intended to pipe the water to Elizabeth, N. J. John Whalen of the Elizabeth Town Water Company, State Bank Building, Elizabeth, is working up the scheme.

There is also talk of a new plant to be built at Union, N. J.

Sugar Machinery.

We are informed on good authority that plans are nearing completion which provide for another large beet sugar plant. It is to be built at Shelby, Ind., and will mark the initiation of the beet sugar industry in that State. The Shelby Sugar Company are to build the plant. The contract for its construction, it is said, has already been placed with the Dyer Company of Cleveland, Ohio. The Shelby Company are incorporated with a capital of $2,000,000. One-half of this has been paid in. One-fourth of it is to be used in the construction of the plant and the remainder is to be set aside for running expenses. Those principally interested are W. R. Shelby of Grand Rapids, Mich., vice-president of the Grand Rapids & Indiana Railway Company; G. W. Cass of Chicago; T. B. Shontz, president of the Indiana, Illinois & Iowa Railway Company, and others.

An item which is being received with considerable interest in the trade refers to a project to build a great sugar refinery in Philadelphia. A party well connected in the trade both here and in Philadelphia states that the work is actually under way. The new plant, it is said, is to be one of the largest ever built. It is to be located on the Delaware River at Philadelphia. The report has it that the new plant is to be operated entirely independent of the American Sugar Refining Company. Adolph Segal of Philadelphia is at the head of the project.

Thomas Gaunt, who has been purchasing the equipment for the new plant to be erected at Shadyside, N. J., by the New York Glucose Company, has placed most of his contracts. The Babcock & Wilcox Company will furnish the boilers. Nordberg engines will be installed and the pumping and special machinery has been purchased from the Stillwell-Bierce & Smith-Vaile Company. Economizers have been ordered from the Fuel Economizer Company, represented by William Downs, 74 Cortlandt street, New York. The New York Glucose Company were incorporated in New Jersey during the week with an authorized capital of $4,000,000. The incorporators include William Rockefeller, Henry H. Rogers, Charles M. Pratt, Henry Batterman, Edward T. Bedford, Charles H. Otis and William J. Matheson. This announcement of the incorporators dispels any doubt that the affair is a Standard Oil project. The plant is to have a capacity of 20,000 bushels of corn daily at first, but it is to be enlarged later.

Power Machinery.

There is talk of a new power station, which is to be erected at Third avenue and 161st street, New York, by the Manhattan Railway Company. According to the reports it is to be an additional electric station, while it is also stated that it is to be fitted as a transformer house.

That something is to be done in this respect is quite evident, as the Manhattan Company filed plans with the Department of Buildings for a $31,000 building in that location.

Parties in the trade who have submitted bids for the erection of the new electric lighting plant for Santiago de Cuba are voicing some rather unpleasant sentiments regarding the Cuban authorities for the postponement of the opening of the tenders. The bids were to have been opened yesterday, but a few days ago it was announced that they would not be considered until March 1. Several New York concerns and one Cuban syndicate complied with all official requirements and sent representatives to the field some time ago. At the last moment Senor Lelis of Havana, who is a partner of a brother of Senor Tamayo, Secretary of State and Government, secured a postponement. It is charged that he used his political influence for private gain, and a protest will be made.

We are informed that plans are being prepared by the Norfolk Light, Heat & Power Company of Norfolk, W. Va., for a large new power station. The matter is said to be in charge of a Mr. Larue of the American Pipe Mfg. Company, Fidelity Building, Philadelphia.

There is an inquiry going around from S. C. Lancaster, City Engineer of Jackson, Tenn., for a 125 horse-power boiler and engine, a 200 horse-power condenser and other mechanical accessories for a municipal electric lighting plant. The estimates are wanted before March 1.

McIntosh & Seymour received the order for the engines which are to operate the new shops of the Philadelphia & Reading Railroad. There will be three 600 horse-power units. This company also received an order from the Mexican Tramways, City of Mexico, for a 1300 horse-power cross compound condensing engine and an order from the Lisbon Tramways of Lisbon, Portugal, for three 650 horse-power units.

Westinghouse, Church, Kerr & Co. have been awarded the contract for the mechanical stokers to be operated at the new Waterside station of the New York Gas & Electric Light, Heat & Power Company. The order calls for 32,000 horse-power of Roney stokers. They also received a contract for a 210 and a 125 horse-power gas engines from the McClintock-Marshall Construction Company of Pittsburgh, who are erecting new shops. From the National Iron & Steel Works of Mexico they received an order for a 300 horse-power and a 125 horse-power and a 50 horse-power gas engines.

The George V. Cresson Company have just closed a number of important contracts which have been hanging over the power transmitting machinery market for some time. From the Planet mills of Brooklyn they have received an order for a 1000 horse-power rope drive. They have just closed a deal calling for a large equipment of power transmitting machinery, piping and Pelton water wheels for a Mexican cotton mill. Other notable mill contracts which they have closed for power transmitting machinery include the Darlington, S. C., mills and the Covington, Ga., mills. A large order was also received from the Slatersville Finishing Company of Slatersville, R. I., and for the new factory being built at New Brunswick, N. J., by Johnson & Johnson. They will supply all of the shafting, hangers, pulleys, &c.

McClave, Hamilton & Rimmer of 85 Liberty street secured the contract for the two large engines purchased by the Hudson County Brewery Company of Hoboken, N. J. They will also supply the Locomobile Company of America with an engine and dynamo for their new plant now building at Bridgeport, N. J.

The order for the two 200 horse-power and the two 100 horse-power engines for the new department store of Hahne & Co. of Newark, N. J., went to the Harrisburg Foundry & Machine Company. The engines will be coupled to Crocker-Wheeler dynamos.

The International Power Company received the contract for the 1000 horse-power engine to be installed by the Planet mills of Brooklyn, N. Y.

Charles H. Paine of 85 Liberty street has received the order for the heaters and condensers for the new plant of the Washington Hospital for the Insane, Washington, D. C.

Hill, Clarke & Co. of Boston, Mass., who are the New England representatives for a number of high class

QUOTATIONS OF IRON STOCKS DURING THE WEEK ENDING FEBRUARY 20, 1901.

Cap'l Issued.		Thursday.	Friday.	Saturday.	Monday.	Tuesday.	Wednesday.	Sales.
$29,000,000	Am. Car & Foundry, Common	-21⅜	-21½	21½-21⅞	21½-21¾	21 -21½	20¼-21	3,900
29,000,000	Am. Car & F'ndry, Pref. (7 % Non-Cu.)	-71	-71	.....	.....	70 -70½	70 -70¾	2,025
19,000,000	Am. Steel Hoop, Common	30¼-31½	30¼-31⅜	31¼-31⅞	28½-32	27¼-28⅞	27 -27⅝	23,700
14,000,000	Am. Steel Hoop, Pref. (7 % Cu.)	.....	77½-78	-78	79 -86	82 -84⅞	78½-81	31,400
50,000,000	Am. S. & W., Common	50¾-53	51½-53⅜	51 -52⅝	48¾-51½	48 -50⅞	47 -49⅛	187,700
40,000,000	Am. S. & W., Pref. (7 % Cu.)	93½-93⅞	94 -94¼	94 -94¼	94¼-98	95⅛-97½	95 -96⅜	25,500
28,000,000	Am. Tin Plate, Common, N. Y.	64 -65⅛	64⅝-65	64⅝-67⅛	64 -66⅞	62½-65¾	61¼-63½	39,900
18,325,000	Am. Tin Plate, Pref., N. Y. (7 % Cu.)	91½-92	92 -93	92⅞-93	93⅜-100	97¼-100	96 -97½	12,200
7,500,000	Bethlehem Iron†	.....	.....	.....	-61½	-61½	.....	200
15,000,000	Bethlehem Steel, par $50, $1 paid in	.....	.....	.....	.....	.....	.....	....
7,974,550	Cambria Iron, Philadelphia*	.....	.....	.....	.....	.....	.....	....
16,000,000	Cambria Steel**	18⅛-18¼	18 -18⅛	-18⅛	-18	-18	-17¾	2,855
11,000,000	Colorado Fuel & Iron	45 -46¼	45¾-46¼	45¾-46¼	41¾-45	42⅝-43	43⅛-43⅞	16,300
24,410,900	Crucible Steel, Common	27 -27½	27½-27⅝	27 -27½	-26½	25½-26	25 -25⅛	2,900
24,399,500	Crucible Steel, Preferred	.....	.....	.....	-82½	.....	.....	100
46,484,500	Federal Steel, Common	50½-52⅞	51⅝-52¾	51¼-52½	47¾-51½	48 -49¼	46¼-48⅝	124,300
53,253,500	Federal Steel, Pref. (6 % Non-Cu.)	80½-81⅞	80¾-82	81½-82½	82¾-87	84¾-87	83½-85	100,650
15,000,000	International Pump, Common	-29	-29	-29	28½-29½	.....	-28¾	1,500
12,500,000	International Pump, Preferred	-76⅛	.....	.....	76 -76⅛	.....	-76½	400
11,000,000	International Silver	- 6¼	- 6¾	.....	.....	6 - 6½	.....	400
32,000,000	National Steel, Common, N. Y.	46½-47¼	46¾-48	47¼-48	43¼-47½	42 -45	42⅛-44	37,200
27,000,000	National Steel, Pref., N. Y. (7 % Cu.)	95¼-97½	97¼-99	100 -101½	100 -101¼	99½-100	99 -100	20,600
40,000,000	National Tube, Common, N. Y.	66½-67⅞	67 -67⅞	66⅝-67½	60 -66½	61⅛-64½	61½-62½	27,200
40,000,000	National Tube, Pref., N. Y. (7 % Cu.)	-105	105 -106	-105	105½-106⅛	-105½	105 -105⅝	3,616
5,000,000	Penna., Common, Philadelphia	-70	.....	.....	.....	.....	.....	2
1,500,000	Penna., Pref., Philadelphia	.....	.....	.....	.....	.....	85 -90	115
12,500,000	Pressed Steel, Common	38 -38⅝	37¼-38	37¼-37⅞	37 -37⅛	.....	35⅞-36½	2,700
12,500,000	Pressed Steel, Pref. (7 % Non-Cu.)	76 -77⅝	.....	77¼-77¾	-77½	-77	76 -76¾	2,000
27,191,000	Republic Iron & Steel, Common	16⅝-17	16¾-17	16¼-16½	15 -16¼	14½-15	14½-14¾	8,100
20,306,900	Repub. Iron & Steel, Pref. (7 % Cu.)	-67⅞	63¼-64	-62¾	63 -65	63½-64	63 -63¼	8,100
7,500,000	Sloss-Sheffield S. & I., Common	.....	.....	22¼-23	-23	.....	.....	300
6,700,000	Sloss-Sheffield S. & I., Pref. (7 % Non-Cu.)	-69	.....	-70	69¾-70½	68 -70½	68 -68½	1,500
20,000,000	Tennessee Coal & Iron	62½-63½	62 -63¾	62½-63½	59 -62½	56½-60½	55 -56½	36,900
1,500,000	Warwick Iron & Steel (par $10)	- 7⅛	- 7⅛	- 7⅛	- 7⅛	- 7⅛	- 7⅛	4,670

* Par $50. ** $10.50 per share paid in. † 6% guaranteed by Beth. Steel Co. Late Philadelphia sales by telegraph. ‡ Ex-dividend.

Bonded indebtedness: Am. S. & W., $130,656; Am. Tin Plate, none; Am. Steel Hoop, none; Cambria Iron Co., $2,000,000 6 % debenture 20-year bonds, 1917, payable option 5 years, assumed by Cambria Steel Co.; Federal Steel Co., $9,822,000 Illinois 5 %, $7,417,000 E. J. E. R. R. 5 %, $1,600,000 Johnson 6 %, $6,732,000 D. & I. R. R. R. 5 %, $1,000,000 2d D. & I. R. R. R. 6 %, $10,000 land grant D. & I. R. R. R. 5 %; National Steel, $2,561,000 6 %; National Tube, none; Tennessee C., I. & R. R. Co., $8,367,000 6 %, $1,114,000 7 %, $1,000,000 7 % cu. pref.; Pennsylvania Steel, $1,000,000 5 %, Steelton, 1st, 1917, $2,000,000 5 %; Sparrow's Point, 1st, 1922, $4,000,000, consolidated, both plants; Bethlehem Iron, $1,351,000 5 % maturing 1907. Interest and principal guaranteed by Bethlehem Steel Co. Republic Iron & Steel, none; Warwick Iron & Steel, none; Colorado Fuel & Iron Co.; Col. Fuel Co. Gen. Mort. 6 % $880,000, Col. Coal & Iron Con. Mort. 6 % $2,810,000, Col. Fuel & Iron Gen. Mort. 5 % $2,303,000. Also outstanding $2,000,000 preferred stock on which dividends have been paid to June 30, 1900. Sloss-Sheffield St. & I. Co., Sloss I. & S. first mortgage 6 %, $2,000,000, Sloss I. & S. general mortgage 4½ % $1,835,000.

machine tool builders, have opened an office in New York City. It is located at 253 Broadway, and is in charge of E. D'Amour of the D'Amour & Littledale Machine Company. Hill, Clarke & Co. inform us that they have several new machines which they are putting on the market, and wish to introduce quickly. One of these is the Milwaukee milling machine.

Iron and Industrial Stocks.

The market for iron stocks has been entirely under the domination of the changing phases of the negotiations for the merger of the consolidations of the Central West. The opinion expressed last week that the preferred stocks seemed to have a better position in the proposed plan, so far as outlined, seemed to be more general on Monday, and altogether there have been exceptionally heavy transactions in Hoop, Tin, Wire, National Steel and Tube preferred issues, with rather considerable fluctuations. The latest reports are that the merger is likely to go through, although there is still some doubt as to the attitude of the Moore interests. Tennessee stock has weakened lately, owing to reports that the annual report may prove disappointing.

There are some rumors afloat of a possible consolidation of some of the large outside interests, the Cambria, Pennsylvania, Bethlehem and Midvale companies being mentioned.

	Bid.	Asked.
American Bicycle Company, common	7	8
American Bicycle Company, preferred	26	27
American Bicycle Company, bonds	78	80
American Bridge Company, common	43⅜	44¼
American Bridge Company, preferred	91½	92
American Sheet Steel, common	27	28
American Sheet Steel, preferred	77¾	78½
E. W. Bliss, common	..	137½
E. W. Bliss, preferred	125	..
Cramp's Shipyard stock	84	85
Diamond State Steel	3½	3⅝
Dominion Iron & Steel Company	25⅞	..
Empire Iron & Steel, common	..	8
Empire Iron & Steel, preferred	32	42
National Enam. & St., common	18	21
National Enam. & St., preferred	79	82
New Haven	5	5¼
Otis Elevator, common	31¼	32¼
Otis Elevator, preferred	92½	93½
Pratt & Whitney, common	3½	5
Pratt & Whitney, preferred	45	55
Tidewater Steel	6	6¼
U. S. Cast Iron Pipe Company, common	4	5
U. S. Cast Iron Pipe Company, preferred	32	34
U. S. Projectile	110	..
Va. C. I. & C., stock	3½	5
Va. C. I. & C., bonds	37½	38½
H. R. Worthington, preferred	112	115

Colorado Fuel & Iron Company.—The Colorado Fuel & Iron Company report earnings as follows:

	1900.	Changes.
Net, December	$144,297	Dec. $62,421
Net, six months	1,289,784	Inc. 329,692
Charges	601,790	.....
Surplus	$687,994	.....

The charges include bond interest, taxes and preferred dividend for the entire year to June 30, 1901.

Dividends.—The Park Steel Company have declared the regular quarterly dividend of 1¾ per cent. on their preferred stock, payable March 1. Books close February 20 and reopen March 1.

The National Tube Company have declared the regular quarterly dividend of 1¾ per cent. on their preferred stock, payable April 1. The books will close March 11 and reopen April 2.

The Officers of the American Steel & Wire Company.—At the meeting of the directors of the American Steel & Wire Company the following officers were elected: J. W. Gates, chairman; Wm. P. Palmer, president; Wm. Edenborn, first vice-president; J. S. Keefe, second vice-president; P. W. Moen, third vice-president; S. R. Chisholm, fourth vice-president; F. L. Watson, treasurer; T. P. Alder, assistant treasurer, New York; A. F. Allen, assistant treasurer, Chicago; C. S. Roberts, secretary; F. E. Patterson, assistant secretary, New York; A. F. Allen, assistant secretary, Chicago; C. A. Honecker, auditor; C. A. Vogt, assistant auditor; Max Pam, general counsel. The Executive Committee consists of the following: J. W. Gates, Wm. Edenborn, P. A. B. Widener, Thos. F. Ryan, John Lambert, H. Clay Pierce, Wm. P. Palmer.

Electricity in this Century.

BY ELIHU THOMSON.

The role of a prophet is certainly a very difficult one, and he treads dangerous ground who attempts to say in what direction future advance will take place. New discoveries may at any time change the course of events and open up paths of development now unknown. Whatever is said of the future of our science must of necessity be based upon present indications, as well as upon our imagination, and, it may even be, upon our hopes. There are certainly problems enough still unsolved; plenty of work for the young, fresh and bright minds, the deft and painstaking experimenters of the future. In the past valuable resources have been shamefully wasted and they are still often used without much regard to economy. If necessity be really the mother of invention, the future higher cost of fuel must force the adoption of economical means for utilizing heat. Without doubt the gas engine, the steam engine using superheated steam, and the secondary engine using a volatile fluid boiled by the heat of exhaust steam will grow in importance in the immediate future. We must see that America is not backward in these advances, even though she may not feel the fuel scarcity for a long time. That electrical energy can give a higher yield of light than it now does in the usual electric lamps is abundantly proved. The Nernst lamp and the discharge in gases under proper conditions may produce 1 candle per watt. It is well known that the condensed spark discharge in air is a more efficient light producer than the electric arc, but as yet no thoroughly practical means for utilizing these more efficient light sources has been developed. With lamps of 1 watt per candle and with large gas engines of efficiencies ranging up to 30 per cent., started and stopped readily and kept under efficient loads, the future of electric lighting would be brilliant indeed.

The solution of the problem of obtaining luminous rays unaccompanied by low or invisible heat rays is, to all appearances, yet remote. Perhaps it will come through the chemist and not through the electrician, perhaps from a combination of the efforts of both of them. What nature has done in the various light-giving insects may possibly be imitated by man; the substance secreted by the firefly and oxidized most efficiently for light production may indeed be capable of being cheaply manufactured.

Any one who has had the lesson of the almost deserted streets and avenues of a large city brilliantly lighted during the small hours of the early morning brought forcibly home to him must deplore the necessity for wasting the fuel resources of the world while nearly all of the people are asleep. The solution of the problem of light without heat by some electric means would furnish the same illumination at about 1-20th the expenditure of power, and if this were furnished by an engine of 50 per cent. fuel capacity, only 1-100th of the fuel now used would be required. Manual labor may be wastefully used and the new-born generations make good the loss, but the loss of valuable minerals, such as coal, oil and natural gas is a veritable world impoverishment, worse indeed than the terrible destruction of forest timber to be worked up into paper for the many useless prints, such as medicine advertisements, or to be compared with the burying of the beautiful metal nickel, in the iron of armor plate, never to be recovered and possibly eventually to reach the sea bottom.

We need not dwell here upon the manifest revolution which the electric motor is making for isolated powers located so as to be fed from a central power plant. The past few years have shown a continually increasing use of electric power, and this development will doubtless long continue in an increasing ratio.

The problem of the production of electricity from the potential energy of carbon and oxygen, at high efficiency and in some direct way, is one the solution of which is a hope of the future. The problem is not an easy one to solve, and its solution may not, after all, be direct. It is conceivable that the reducing power of carbon may be employed to rejuvenate exhausted materials such as those from a battery. In other words, the chemical energy of the carbon may be brought into use to prepare other materials for the evolution of electric energy. Even if this could be done at high efficiency and with the use of fuel only, the more direct use of the fuel might cease to be so eagerly sought. We would need for this solution of the problem materials easily recoverable from an exhausted battery and capable of reduction on the large scale by carbon. Other materials reduced in the battery and capable of oxidation by the air at some selected temperature would be needed. We may be permitted to picture the electric station in such a case as a huge battery house coupled with an immense chemical factory. But it may never come.

Electro chemistry in the coming century has an assured future of great importance. Electro chemical operations are peculiarly adapted to the utilization of water powers, as they may use the electric energy developed under full load conditions night and day, or may be shut down during periods of water scarcity without much loss. The power of the water may thus replace in its effects those of costly chemical reagents. Moreover, the electro chemical factory may be run as a means for utiliizing surplus energy which would otherwise go to waste in systems of electric lighting or power transmission, where conditions are favorable.

As a matter of pure science, great interest now centers upon the newer ideas in relation to the constitution of the chemical atom, its relation to the ether of space and to other atoms. Faraday perceived clearly that electric and magnetic forces and phenomena were intimately connected with the ether, and subsequently physicists, such as Maxwell, Lord Kelvin and many others, developel the theory from the mathematical side, Maxwell arriving at the conception that light and heat radiation were electro magnetic waves in the ether. This splendid theory received its experimental confirmation in the brilliant researches of Hertz and others following him. What we know of the ether concerns its electric and magnetic behavior. It can be polarized magnetically; it can be stressed electrically; it can be periodically stressed and polarized by atoms of matter and electro magnetic waves such as those of light and heat so set up in it, conveyed at the enormous velocity of nearly 200,000 miles per second, which is the same as the rate of propagation in free ether of the other electrical disturbances. Electro magnetic field or induction and electrostatic induction take place in the ether as the medium. Electric energy is transferred in the ether surrounding a conducting wire, the wire being only the guiding core, so to speak. The ether is an electric medium; its properties are electro magnetic. Has it any other properties ? Has it need of any others ? It appears to be universal, fundamental. If so, do not its properties and actions lie at the basis of what we call matter ? The various chemical elements are related by what is called the periodic law; they are not separate entities created or existing alone; they have been born of conditions. They are probably being formed in some of the distant stars. These are ideas which have suggested themselves from time to time to thinkers for many years past. We know that an electric charge existing anywhere in a perfect insulation cannot be lost, and we know also that an electric current in a perfect conductor is permanent and its magnetic field permanent. May not the fundamental properties of matter, such as mass, inertia, elasticity, cohesion, gravitation, be in some way dependent upon and explainable by the electric properties of the ether? To these inquiries and others like them much thought is now given by able men.

Chemical affinity may be explained by the electric forces due to atoms possessing electric charges, and it appears probable that electric theories will be found to explain the other fundamental properties mentioned. In fact, ideas of great promise are not wanting in this connection. Prof. R. A. Fessenden, after showing that a relation exists between the velocity of sound and electric conductivity, thus connecting elasticity and density with electric resistivity, proceeded by ingenious methods and

experimental researches to find, if possible, the density and elasticity of the ether itself. Recently he has also proposed electric hypotheses for cohesion, inertia and gravitation. These involve such properties as rigidity, momentum, mass and weight. Time and space is wanting to give any proper outline of these extensions of electromagnetic theories, and reference should be made to Professor Fessenden's papers, some of which have appeared in the columns of this journal.

Briefly, cohesion is explained by the electrostatic attraction of the charged electrons in the atom, inertia is the inductance of the large number of charged corpuscles constituting an atom of matter, and gravitation is due to a density change in the ether around the charged corpuscles or electrons, owing to the electrostatic stresses existing. Upon this theory, as Fessenden points out, the relation between the masses and the weights of various bodies under like conditions is constant for each body. Whether these ideas will stand the test of future research cannot be determined now. That these hypotheses and other of like nature will furnish groundwork for investigation in proof or disproof is unquestionable. It will be noticed that the ideas themselves are based upon the very latest results of physical research.

The recent studies of electrons, or electric charge-carrying corpuscles much smaller than the chemical atom, have formed the needed basis. The advanced physicist has no hesitation in decomposing the hydrogen atom into more than a thousand electrified corpuscles or electrons. Some carry negative charges, others positive. Moreover, the interesting conclusion is reached that the electrons of all the chemical elements are probably of the same size and possibly identical. Beginning with the study of electrolysis as due to free ions in the solution, the conclusion was long ago reached that the action of dissolving a salt in water resulted in partial dissociation and formation of free ions with electric charges. It was found that gases fresh from a flame contained free ions, that they were produced in silent electric discharges, and that air and gases could be ionized in various ways. Ions are produced by ultra-violet light, by Roentgen rays, and by those from uranium or radium, while the cathode rays in a vacuum tube are believed to be due to negatively charged corpuscles. Beginning with the work of Lenard, investigation into the nature and properties of cathode rays has been carried on by many able investigators and with the result of great enrichment of science in the few closing years of the century. Professor J. J. Thomson has been an indefatigable worker in this field, and his deductions are far reaching. The field itself is a veritable fairlyand of science, but the results, however they may be eventually interpreted, are of great importance to future work. If matter be reduced to assemblages of electrons or charged corpuscles, thousands of which make up a single chemical atom, the nature of the charges themselves remains still a great mystery and the real nature of the ether in which they exist remains unsolved. But if the electromagnetic ether theory succeeds in supplanting many unexplained things by a fewer number more evidently fundamental, a real advance into the unknown has certainly been made. Just as a conception of infinite space is not possible with us, so we may only approach without ever reaching the ultimate solution of the mystery of the physical universe. A world without new problems might indeed be a dull one to live in, lacking the stimulus arising from prospective conquest of the unknown.—*Electrical World.*

The statistician of the United States Agricultural Department shows the total value of the light staple products of the farm—corn, wheat, hay, oats, potatoes, barley, rye and buckwheat—in 1900 was $1,861,466,582. The average prices of all the eight crops at the end of 1900 were higher than at the end of 1899. Thus the corn crop of last year, although but little larger than that of the preceding year, was worth $112,000,000 more.

J. W. M. Boone of Fort Smith, Ark., is in the market for machinery for the manufacture of pressed brick and of paving brick.

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HARDWARE.

ONE of the most important and far reaching problems which manufacturers are called upon to solve is as to the immediate channels through which their goods shall be distributed, or, in other words, with whom shall the manufacturers deal on the basis of their lowest prices ?

The question naturally resolves itself into two divisions—that of quantity and that of caste. The former has been the more popular and, in fact, has prevailed almost entirely until the last two years, and is still adhered to in the sale of the great majority of lines. It assumes that the buyer of the largest quantities is entitled to the best prices by virtue of the size of his orders alone, and without regard to whether he is a dealer or a consumer, whether a small jobber or a large retailer; for the whole plan is based upon the simple but well recognized economic principle that large quantities should command low prices.

The application of a principle is, however, a very different thing from the principle itself, and in the attempt to carry out this idea there are developed many difficulties and conflicts. These have arisen largely from the fact that low prices under this method were obtained by buyers, whether small jobbers or large retailers on the one hand, or by consumers on the other, who had been in the habit of supplying their wants through the jobbing trade. The jobbers naturally looked with disfavor on the course of things, which was regarded as overriding distinctions which had been crystallized by time—poaching, as it were, on their preserves. Hence, as well as from other sources, came a good deal of opposition to the principle, base prices on the quantity of purchase.

With the formation of the large aggregations in the Steel and Iron business and the organization of many combinations, this question—always acute—assumed even new and added importance, since so much depended on the decisions of these concerns. Almost without exception the decision has been that the idea of caste—drawing a sharp distinction between jobbers and retailers—shall be strictly maintained. The central idea of the caste theory is that the manufacturers shall make goods, the jobber shall distribute them, and the retailer shall sell them to the consumer.

Whether this decision was reached under pressure from the jobbing trade, to whose interests the plan under consideration so directly contributes, or was reached in view of other and broader considerations, is one which it is not necessary to discuss at this time. The fact, however, that it is chiefly in lines which are controlled by pools, combinations or large consolidations that this principle is applied is significant. Where the market is an open one the application of the principle is much more limited. In such cases the large buyer, though not belonging to the favored class, is usually able to obtain advantageous terms.

The whole matter is at present in an unsettled state, with conflicting tendencies toward the two methods under consideration. It seems, however, safe to assume that the outcome will be determined by the inexorable laws of trade and not by arbitrary agreement between manufacturers or merchants.

The reports of the several Hardware conventions, to which so much space is given in the following pages, are of interest as reflecting conditions and opinions which prevail among the retail Hardware merchants. While these conventions are of primary interest to the class for whose benefit they are held, they are regarded with close and intelligent attention by many jobbers and manufacturers who take broad views of trade questions and desire to keep in touch with trade tendencies. At this time there are many subjects engrossing the attention of Hardware merchants, many of which come up for discussion at such gatherings. They are considered from various standpoints and with wide diversity of view. While the manufacturers' relation to these questions is not fully presented—for both jobbers and retailers know that the manufacturer can pretty well take care of himself—expression is given to the way in which these matters are regarded by the merchants large and small, and the views of the distributers of goods are thus brought out. The unsettled conditions which exist in the trade, and the difficulty of many of the questions which force themselves upon attention, invest the views of representative bodies of merchants with special significance and entitle them to be regarded as an important contribution to the solution of the problems. The manner in which many of these matters are related to the interests of the retail trade will doubtless have much to do with the final determination of the questions.

Condition of Trade.

There continues to be a good volume of business. Jobbers generally report many orders from retail merchants whose local trade is such as to justify keeping stocks well assorted. Manufacturers in most lines are fully occupied on orders and in some are unable to supply goods as fast as their customers desire. In the matter of price, the market is in a peculiar condition, which calls for the exercise of rare judgment on the part of buyers. There are indications of weakness in some directions, of strength in others. A few lines are demoralized in price, and estimating the market by them, the conclusion might be reached that values are rapidly on a down grade. Others are firm in tone, with the possibility of advance, and taking these as a criterion of the general trend, a very confident view might be held. These indications, whether pointing to a weakening or an advancing market, are to be regarded as exceptional. The principal body of goods lie between these two extremes, with a fairly firm tone and no important change in price, but with, perhaps, on the whole, a tendency to a slightly lower level. Notwithstanding the descent there has been from former high values, the trade have experienced comparatively little trouble therefrom, as current business has been and continues so satisfactory that with moderate purchases no great loss has been entailed. The tendency of things in the Iron market, and especially the movement toward the unifying of interests, bringing the great producers under one control, undoubtedly gives an undertone of strength, as it is anticipated that the policy adopted, if the plans under contemplation are carried into effect, will tend toward stability of values. In connection with the opportunity which existing conditions afford to merchants to prosecute their business under favorable circumstances, there are many questions in regard to trade policy and the probable course of things at home and abroad which press themselves upon the attention of those who look carefully into matters of this character, some of which will undoubtedly have an important influence on the future welfare of the trade.

Special Reports.

Chicago.

The demand for Hardware is up to high water mark. The volume of business is running much in excess of the corresponding time last year. This is caused by a variety of reasons. Agricultural districts are enjoying much prosperity, and improvements are being made in small towns and cities all through the West, entailing a large consumption of Hardware. In the city of Chicago the adjustment of labor troubles in the building trade, which so seriously diminished busines last year, is now causing a heavy demand for Mechanics' Tools and the general line of Hardware. This really represents an accumulated business, which would ordinarily have been spread over a much longer period. The recent advances in prices of staple articles have also unquestionably helped trade, although thus far no disposition is seen among retailers to speculate on higher prices. The indications point to further advances on some lines of goods, which will probably stimulate trade still more in the near future. A large manufacturer of Screws, for instance, has notified the jobbing trade that he has taken more orders for Screws than he will be able to fill in six months. If others are having the same experience higher prices for Screws are to be expected. The great consolidation of Steel interests which is now being accomplished will also most likely cause large distributers and consumers to cover their requirements for certain Finished products for fear of higher prices. The outlook at present seems to present nothing but encouraging features either in the direction of a larger volume of busi- ness or better values.

St. Louis.

(By Telegraph.)

A large volume of business is reaching Hardware jobbers. The country trade is particlarly active and sending in repeated orders. Larger quantities of the general line are bought since the advance in Nails, and especially does this apply to goods nearest raw material. The demand for Chains is beyond jobbers' estimates and local makers of Trace Chains are reported as overwhelmed with orders. Quotations on Chains have been withdrawn and prices are firmer. Wire Goods, both plain and ornamental, are in good demand. It is somewhat between buying seasons for activity in Screen Goods, and not much is being done in that line. Makers of Bolts are enjoying a large trade at hardening prices and the sale of Screws is heavy. T and Strap Hinges, Butts, Locks and Builders' Hardware are in better demand by the country trade. St. Louis building operations are held back in many instances pending the passage by the Senate of the World's Fair bill and the decision respecting the exposition site. Black and Galvanized Sheets are in large demand, and the substantial advance in Corrugated Roofing has brought forward some lagging business. Heavy Hardware jobbers report that they are receiving more large orders than during recent weeks, and further say that there is an apparent scarcity of manufactured goods, such as Bolts, Nuts, Washers and kindred items.

Nashville.

Gray & Dudley Hardware Company.—Business continues quite satisfactory. The unusually mild weather with which we have been favored during January and February has contributed largely to the enormous demand for Hardware during the past 60 days. The demand for some lines has been so great that jobbers have found it difficult to supply the trade. This has been particularly noticeable in Trace Chains, Hames, Cotton Rope, Leather Horse Collars, Hammers, Wire Fencing and some other lines.

As we now stand upon the threshold of a new century at a time when almost every aspect of the commercial situation is satisfactory, is it not a good time for the manufacturers and dealers in Hardware to consider some of the evils of hot competition, which, if pursued too far, will result in a very unsatisfactory state of affairs? We refer particularly to the habits which some manufacturers and many jobbers and retailers have drifted into—namely, that of considering only the question of price in the buying and selling of Hardware. This "bear" movement has already in many cases pulled down the price below the standard in quality. We should not lose sight of the fact that first-class articles of Hardware cannot be purchased for the same price as second-class articles, and every buyer should remember that upon the quality of goods marketed by his house depends the reputation of his house. It is a great mistake for the merchant to want to know first what your price is. They will build up a far more satisfactory business by making the quality the paramount issue. We fear that many of us are unconsciousy making the mistake of wanting everything cheap, and the question of quality is frequently lost sight of entirely. We believe that the retailer in casting about for a jobber with whom to place his order should consider carefully the integrity of the house and their facilities for handling the business. The former can easily be judged by the quality of goods that are offered for sale. Some jobbers that we know are pursuing this policy in placing their orders with manufacturers.

Philadelphia.

Supplee Hardware Company.—Trade in trade circles has continued active during the past two weeks; the consensus of opinion, however, is that orders from some sections may be less in length during the past week, but the aggregate of orders is large in numbers. Our salesmen report there is no overstock of any kind of goods on hand as a rule, and at the opening of the season the demand for goods will be active. Unquestionably the outlook for trade in almost all sections is good, nor is there much fear entertained in the minds of either wholesale or retail merchants of any general softening in values.

It cannot be denied but what there has been a general demoralization in two or three lines, to the extent possibly of four lines of goods. These four lines are well known to the trade, and a most surprising fact is the unnecessary demoralization. Various causes are given for this: On two of the lines there seems to be a vindictive feeling on the part of some manufacturers who are not successful in taking large contracts from jobbers. Unquestionably in the lines referred to there are some makers who have a preference over others, more especially owing to the quality of their goods, and it is but natural that jobbers should show a preference toward the goods that have the greatest and best reputation, as they naturally are all desirious of supplying their trade with the best quality of goods, especially if they can be bought at the same price. Hence the manufacturers of less reputation resort for their sales to the smaller jobbers, or to those who are known as retailers with a small amount of jobbing trade, to unload their product. Others, who are not even so successful as the last named, go direct to the retail trade. Jobbers have given their preference for reasons mentioned, and for this grade of goods the same price has been given as that at which the largest jobbers bought the higher grade of goods. This has caused demoralization.

There is another unusual factor. It is very evident that some of the trade who bought to redistribute have been "bearing" the market on these goods to get a lower settlement price from manufacturers. At least, so it looks to the average large trader. It is but natural with this present system of trade that retailers become familiar with these facts. There seems to be another and unusual element: Many of the retailers have been "bearing" the market to an unusual extent, and orders have been known to be countermanded that were given at one price for the highest grade of goods and replaced with others whose goods do not stand quite so high in the market, but at the lowest figure, and so this disturbance has progressed. Manufacturers on their part say that the product will not be equal to the demand, and that many persons who have placed orders for goods of certain makes cannot be furnished. We only have to go back two years to find

that these conditions existed two years ago in the same line of goods, and many buyers were left out in the cold not able to secure their goods at all, or until after the season was over. It is a well-known fact that some persons never secured their goods from the persons with whom they placed orders, and were compelled to give their orders to other houses or other manufacturers at higher rates. Whether there will be a repetition of this is a question yet to be solved.

It is, however, noticeable that a reaction has taken place on this line of goods; jobbers are not willing to sacrifice their stock on this competition, and manufacturers of the highest grade claim they are out of the market and will not accept orders at reduced prices beyond those prices given early in the season, and for which prices sales were made.

There is one other line on which manufacturers are not altogether blameless—that is, the matter of Screws. Prices have been named by some manufacturers who do not make a full line below what other makers of reputation, and who do make a full line, are willing to supply for. It has frequently been stated by the writer through the columns of *The Iron Age* that when combinations exist and prices are adopted beyond a legitimate profit on the product, which have resulted in diminished orders, the jobbers not being willing to carry a large stock of goods, and the combination goes to pieces, it usually results in lower prices than even before the combination was created.

Matters of this kind appear to be the only black spot at present in the sky of confidence, and while it causes dissatisfaction, uneasiness and sometimes unpleasantness in trade circles, there are curative measures which clear the sky of these conflicts of an aggressive nature and vindictive competition within a short period.

The outlook for trade at this writing is good, and collections are fair.

Louisville.

W. B. Belknap & Co.—The Iron and Steel business seems to be in an extremely healthy condition, with all the mills well employed. In fact, it is rather difficult yet to get an assorted order filled promptly, either Iron or Steel Bars. The same applies to Sheets, only these are a little more in arrears.

The fine open weather which we referred to in our last continues. Consequently the consumption of Wire and Nails and everything which goes into construction is kept up at a great rate. There has been absolutely no obstruction to business on the score of the weather throughout the whole season.

The recent advances and rumors of further moderate advances have not disturbed the market specially one way or the other, as far as we can judge. With the great combination, the discussion of which has filled the newspaper columns the past week or so, it hardly seems likely that we are to experience any declines. Somebody has to be paid liberally for his conception and execution of such vast plans as these. Stockholders who invested in the stock of some of the component companies under the implied provision of no bonds will feel a little apprehensive until the financing of the scheme is completed. It looks as though a bond issue were inevitable. If so the preferred stocks, which up to now have had first place, will necessarily take second.

Omaha.

Lee-Glass-Andreesen Hardware Company.—In its general features the condition of the jobbing Hardware trade located on the Missouri River presents no changes of importance. Business in all lines continues to flourish, and the volume of goods daily going into consumption shows no abatement. All acocunts agree that the country tributary is in excellent condition, consequently the spring trade, to which jobbers are now looking forward with interest, will probably be of a very satisfactory character. It is a matter of fact that more new enterprises are under contemplation this season than have developed in several years past, so that financially and industrially this section of the country exhibits a very prosperous condition of affairs.

Portland, Oregon.

Corbett, Failing & Robertson.—For the past month Oregon and Washington have been treated to weather that would more properly be expected in the month of May. Of course this has been favorable for both farming and building operations, and has certainly been taken advantage of. Should these favorable conditions prevail through the season we must have good summer and fall business.

For the present it is no very cheering prospect for the farmer; with wheat at 54 cents per bushel at tidewater and wool ranging from 8 to 11 cents per pound, 75 per cent. of last year's clip in the warehouse, and money owing bank and merchant, he is in no mood to discount the future with optimistic vision. Trade, however, is fair for the season.

St. Paul.

Farwell, Ozmun, Kirk & Co.—February trade has continued satisfactory. Weather conditions have been very favorable. Customers are feeling that prices for the spring trade promise to be firm, and they have but little tendency on this account to hold back on orders for wants.

Notes on Prices.

Wire Nails.—The demand for Wire Nails keeps up in good volume, taxing the capacity of mills. It is not improbable that the congested condition of the mills may delay prompt shipments in the spring. The condition of the market in raw material, and the large demand are referred to by some as rendering an advance in Wire and Wire products not improbable. Quotations are as follows, f.o.b. Pittsburgh, terms 60 days, or 2 per cent. discount for cash in 10 days:

To jobbers in carload lots	$2.30
To jobbers in less than carload lots	2.35
To retailers in carload lots	2.40
To retailers in less than carload lots	2.50

New York.—The local Wire Nail market is without change. Demand continues fair for the season. Quotations are as follows:

To retailers, carloads on dock	$2.53
Small lots at store	2.55 to 2.60

Chicago.—The demand for Wire Nails continues surprisingly heavy. The leading manufacturers have endeavored in numerous cases to limit the orders which large buyers desire to place, fearing that some trouble would be experienced in handling the great volume of trade now being booked, but this simply sharpened the appetites of such buyers, who insisted on having even larger orders entered. Stocks at the factories have steadily been reduced, notwithstanding the great production, which is heavier than ever before known in the winter months. Prices are firmly maintained. Carload lots are quoted at $2.45, and small lots from stock at $2.50.

St. Louis, by Telegraph.—The advance in Wire Nails has this time largely increased the demand. Some buyers who have been pursuing the policy of ordering small lots are now taking carloads. The trade say that absolutely no cutting in prices of Wire Nails is heard of. Price to retailers in carloads is $2.50, base; for smaller lots, $2.55, base.

Pittsburgh.—There is an extraordinarily heavy demand for Wire Nails, considering the season of the year, and the leading interest report that tonnage is steadily increasing. As noted before, the recent advance of 10 cents a keg has stimulated demand, buyers placing orders more liberally, believing that a still further advance is not improbable. Quotations are as follows, f.o.b. Pittsburgh, terms 60 days, or 2 per cent. discount for cash in 10 days:

To jobbers in carload lots	$2.30
To jobbers in less than carload lots	2.35
To retailers in carload lots	2.40
To retailers in less than carload lots	2.50

Cut Nails.—Cut Nails are moving in fair quantities, and mill prices are well maintained. Orders for less

than carload lots constitute most of the business. Quotations are as follows, f.o.b. Pittsburgh, plus freight per manufacturers' rate book, from which actual freight is deducted by purchaser, terms 60 days, or 2 per cent. off in 10 days:

Carload lots	$2.00
To jobbers in less than carload lots	2.05
To retailers in less than carload lots	2.15

New York.—There is a seasonable demand for Cut Nails. Business is confined, to a considerable extent, to small lots from store. Quotations are as follows:

To jobbers in carload lots on dock	$2.15
To jobbers in less than carload lots on dock	2.20
To retailers in less than carload lots on dock	2.30
Small lots from store	$2.25 to $2.30

Chicago.—The demand for Cut Nails is good, being better than had been expected at this season. Jobbers quote carload lots at $2.25 and small lots from stock at $2.35.

St. Louis, by Telegraph.—There is a good demand for small sizes of Cut Nails, particularly for Shingle Nails. Prices range from $2.35 to $2.45, base.

Pittsburgh.—There is a fairly active demand for Cut Nails, and the market is firm at the recent advance. To jobbers, prices are on carload lots $2, and on less quantities $2.05, f.o.b. Pittsburgh, plus the sixth-class rates of freight contained in the "melon-colored" rate book, less actual freight rates. To small dealers and consumers $2.15 rates, f.o.b. Pittsburgh, plus the fifth-class "melon-colored" rates, less the actual current rates; terms 60 days, less 2 per cent. for cash in 10 days.

Barb Wire.—The demand for Barb Wire is large and manufacturers are making shipments as facilities permit. The feeling is gaining ground that there is a possibility of an advance in prices of Wire. Quotations for domestic trade are as follows, f.o.b. Pittsburgh, net cash 60 days, or 2 per cent. discount for cash in 10 days:

To jobbers in carload lots, Painted	$2.60
To jobbers in carload lots, Galvanized	2.90
To jobbers in less than carload lots, Painted	2.65
To jobbers in less than carload lots, Galvanized	2.95
To retailers in carload lots, Painted	2.70
To retailers in carload lots, Galvanized	3.00
To retailers in less than carload lots, Painted	2.80
To retailers in less than carload lots, Galvanized	3.10

Chicago.—The demand for Barb Wire is growing heavier, and manufacturers find it impossible to accumulate any stock. Carload lots are quoted at $2.75 for Painted and $3.05 for Galvanized, and small lots at $2.80 and $3.05, respectively.

St. Louis, by Telegraph.—Extensive shipments of Barb Wire are being made by jobbers. The demand since the advance is proportionate to that for Nails, and large quantities are being bought. It is said that mills will not entertain contracts for Wire and Nails covering certain periods, but will take orders for stated tonnage to be shipped at their convenience. Painted, in carloads to retailers, is $2.80; smaller quantities, $2.85. Galvanized is 30 cents higher.

Pittsburgh.—There is a strong demand for Barb Wire, and spring trade promises to be heavy. For domestic trade we quote: Galvanized Barb Wire, $2.90, in carload lots to jobbers, and Painted, $2.60. Terms 60 days net, 2 per cent. discount for cash in 10 days, f.o.b. Pittsburgh.

Plain Wire.—The market is firm and Plain Wire is in good demand. Quotations are as follows, f.o.b. Pittsburgh, terms 60 days, or 2 per cent. off for cash in 10 days:

	Base sizes. Plain	Galv.
To jobbers in carload lots	$2.25	$2.65
To jobbers in less than carload lots	2.30	2.70
To retailers in carload lots	2.35	2.75
To retailers in less than carload lots	2.45	2.85

The above prices are for the base numbers, 6 to 9. The other numbers of Plain and Galvanized Wire take the advances indicated in the following table:

Plain Fence Wire Advances (Catch Weights).

Nos.					Galvanized.
6 to 9	Base				$0.40 extra.
10	$0.05	advance	over	base	.40 "
11	.10	"	"	"	.40 "
12 and 12½	.15	"	"	"	.40 "
13	.25	"	"	"	.40 "
14	.35	"	"	"	.40 "
15	.45	"	"	"	.75 "
16	.55	"	"	"	.75 "
17	.70	"	"	"	1.00 "
18	.85	"	"	"	1.00 "

For even weight bundles, 50 pounds or over, 5 cents per bundle advance on above.

Chicago.—The volume of business in Plain Wire is very heavy for the season. Manufacturing consumers are anticipating their wants, keeping the factories employed to their full capacity. Carload lots are quoted at $2.40, base, and small lots from stock at $2.45.

Pittsburgh.—There is a good demand and the market is firm. Some in the trade believe prices may be advanced again before long. For domestic trade we quote:

	Plain.
To jobbers in carload lots	$2.25
To jobbers in less than carload lots	2.30
To retailers in carload lots	2.35
To retailers in less than carload lots	2.45

Galvanized Wire up to No. 14 is 40 cents advance on Plain; Nos. 15 and 16, 75 cents advance, and Nos. 17 and 18, $1 advance. Terms are 60 days net, with 2 per cent. off for cash in 10 days, f.o.b. Pittsburgh.

Screws.—Since the recent reduction in price by the manufacturers of Screws there has been a large volume of business, as merchants have been purchasing freely so as to avail themselves of the low prices. As a result of this condition the market has a better tone, with evidences of a reaction from the extreme quotations at which business has been accepted, and some of the prominent manufacturers are refusing to accept orders at figures recently current.

Files.—As a result of the purchase of other File plants by the Nicholson File Company the market is regarded as in a better condition than for some time. It is anticipated that there will be diminished competition between the manufacturers now in the field, and the withdrawal of some of the extreme discounts that have been current is an indication of increasing strength.

Maine Mfg. Company.—The Maine Mfg. Company, Nashua, N. H., are selling their line of Maine Window Screen Frames at the list given below, which is subject to a discount of 40 and 10 and 5 per cent.:

Size.		No. 4 extra.	No. 8.	No. 9.
36 x 40	Per dozen,	$3.50	$5.25	$5.75
42 x 42	"	3.75	6.00	6.50
48 x 48	"	4 10	6.50	7.00
54 x 54	"	....	....	8.00

Cordage.—The demand for Rope is moderate at unchanged prices. The market ranges, on a basis of 7-16 inch and larger, from 7¼ to 7½ cents for Sisal, and 9¾ to 10 cents per pound for Manila Rope, according to quantity.

Binder Twine.—Eastern manufacturers are not as a rule pushing the sale of Binder Twine, owing to the near approach of Hemp to the selling price of the finished product. The Hemp market has advancing tendencies, Manila being particularly strong. General quotations are as follows for small lots of Twine, with a rebate of ¼ cent per pound for carload lots, f.o.b. Eastern factory:

White Sisal, 500 feet per pound	7½c.
Standard, 500 feet per pound	7½c.
Manila, 600 feet per pound	9c.
Pure Manila, 650 feet per pound	10¼c.

Glass.—The American Window Glass Company and the Independent Glass Company required that the specifications for the last consignment of the order for 750,000 boxes of Glass placed by the National Window Glass Jobbers' Association be in by February 20. Some time before March 1 the association is expected to place another contract. It is predicted by some that the manufacturers will advance prices over those paid for the last consignment, the possible advance being referred

to as 15 to 20 per cent. Quotations are as follows from the Jobbers' Association list, dated January 21, 1901:

Less than car lots, 88 per cent. discount.

Car lots, 90 per cent. discount.

Three thousand box lots, 90 and 5 per cent. discount.

Paints and Colors.—*Leads.*—The White Lead in Oil market is quiet, without change in prices. Manufacturers are only grinding sufficient for current requirements, owing to the unsettled condition of the Oil market. Prices are as follows: In lots of 500 pounds and over, 6½ cents per pound; in lots of less than 500 pounds, 7 cents per pound.

Oils.—*Linseed Oil.*—Demand for Linseed Oil is very light and the market is exceedingly dull. While there is no quotable change in quotations, some independent crushers might be induced to shade prices to secure business. City Raw is quoted at 65 to 68 cents, according to quantity, and State and Western Raw at 63 to 65 cents. Boiled Oil is 2 cents per gallon advance.

Spirits Turpentine.—The Turpentine market is dull and firm at 39½ cents for Southerns, and 40 cents per gallon for machine made barrels.

Indiana Retail Hardware Dealers' Association.

THE second annual convention of the Indiana Retail Hardware Dealers' Association opened on Tuesday morning, 19th inst., at Indianapolis, the members assembling in the convention hall of the Grand Hotel, with President Weed in the chair. One hundred and four members answered the roll call. I. A. Sibley of South Bend read a communication from the Wholesale and Retail Grocers' Association, in which that body urged the co-operation and indorsement of the association to have laws passed for the better protection of merchants. It was accordingly moved and seconded that the Indiana Association should co-operate as suggested, and a communication was prepared, duly signed by the president and secretary, a copy of which will be sent to each member of the Legislature, urging the passage of more stringent laws for the benefit of merchants. In the evening the members attended a very enjoyable banquet at the Columbia Club as guests of the manufacturers and jobbers of the city. We reserve a full report of the proceedings of the convention until our next issue.

The Nicholson File Company's Purchase of Other Plants.

IT is announced that the Nicholson File Company of Providence, R. I., are about acquiring the properties of two of the largest File and Rasp manufactories in this country outside of their control. The purchase of the Arcade File Works is understood to have been consummated, and while the negotiations with Kearney & Foot Company are not formally concluded, it is regarded as practically settled that they will come under the control of the Nicholson File Company. These important transactions are in pursuance of a policy which has long characterized the Nicholson File Company, who a number of years ago acquired the American Works, at Beaver Falls, Pa., and more recently the Eagle File Works, at Middletown, N. Y.; the McClellan Works, at Saginaw, Mich., and other smaller properties.

The trade will recognize the importance of this transaction in the commanding position thereby gained by the Nicholson File Company, to whom the addition of these two plants gives a united capacity of nearly 10,000 dozen Files and Rasps per day, and gives employment to between 2200 and 2300 hands, making the company undoubtedly the largest and most influential in the File trade of the world. It is estimated, in fact, that it will give them control of more than three-quarters of the File product of this country. It should be borne in mind, however, that this consolidation of interests does not create a monopoly, as several large manufacturers of recognized position are in the market as competitors.

Hardware in the Philippines.

FROM OUR SPECIAL CORRESPONDENT.

SECOND ARTICLE.

Artificial Ice Machinery and Tools.

There appear to be numerous persons engaging in the manufacture of artificial ice in the Philippines. With the appearance of hotels, restaurants, soda fountains, &c., in the leading cities and towns there has come a decided demand for ice, and fabulous prices are paid for what can be secured. Ice is very scarce. Your correspondent is able to secure a piece, at high cost, about once in three weeks. Every one wants ice and will pay dearly for it. This fact is causing many enterprising persons to take steps to go into the ice making business and they are corresponding with American and other firms concerning the furnishing of the necessary apparatus and tools.

There will always be a great amount of business done in ice making in these islands and there is no doubt that it would pay richly for a few American concerns that handle ice making machinery to send their agents here and establish an agency in Manila, Iloilo and in one or two of the larger cities in the islands of Mindanao, Cebu and Negros. In some cases where they have put in the engine and steam plant equipment they are at a standstill, owing to lack of pipes and valves. Quite a lot of piping, elbows and unions are needed in an ice making plant, and I have known whole communities to be cleaned out of surplus piping for the sake of furnishing the needed outfit for an ice plant. Valves are very much needed, and a dollar valve will easily bring three dollars here. Soldering materials are very scarce.

Fire Arms.

For the past two years the United States Government has, of course, prohibited the sending of Fire Arms to the stores and the stores have been prohibited from handling either Arms or Ammunition for fear that the insurgents would get some of them. But with the coming of peace these impediments to the establishing of Fire Arms stores are passing away, and at the present time there are several business men in each of the leading cities consulting catalogues of Fire Arms with the intention of placing the necessary orders as soon as it is authorized to carry stocks of these goods. I met with a number of men in Manila, and also in Iloilo, who calculate to do an extensive business in Fire Arms when the proper time comes.

There are goodly sized police forces of natives in every city and town of the islands, and in all cases, except in Manila and Iloilo, these forces are armed only with spears, bolos and clubs. The presidentes of the different places have time and time again applied for authority to buy Fire Arms, such as Revolvers, for the police, but the rules require that no Arms shall be sold. Then there are the miners of the hills, hundreds of whom want better Fire Arms than they have. The Revolver I carry would sell a dozen times over for twice its value. But no one sells his Revolver here, for he cannot get another. Fire Arms stores will certainly do a good trade for many years after the opening of traffic in Fire Arms in these islands.

Jewelers.

Jewelers have always thrived in the islands. Their custom is to have the person desiring a ring, chain, pin or watch case furnish the material from which to make the article. A person wants some ornament made, and he goes to the jeweler with a bit of gold or silver, or with a piece of metal money. The same is melted and molded to the desired shape, or is cut and finished by hand methods. These jewelers are ingenious and do a good business, but they are in woeful lack of proper equipments.

They need Blow Pipes, Jewelers' Bellows, Forges, Anvils, Brazing Devices and, in fact, all tools used in the metal working line. They have hardly a tool, and the result is that they are obliged to devote much labor to accomplishing a small amount of work. They need Boring Tools very much; all they have at present being

the bow shaped piece with the upright, with which they twirl the boring tool long enough to wear an irregular hole through the metal.

Hardware Fixings for Lights.

The introduction of entirely new systems of lights for the Philippines has also called forth a good demand for such articles of Hardware as were never thought of in years past. The old cocoanut oil lights, which were never reliable, are fast being substituted by good Oil Lamps of American manufacture. Then there are Bracket Lamps being introduced, and these call for Metal Brackets and Screws. Post Lamps for hallways and Shelf Lamps are here now. An order requiring that lights be kept burning all night in front of houses, one for each house, has created a considerable call for forms of Brackets for suspending the Lamps in proper position.

Business for the Dull Season.

BY SYSTEMATIC.

THE amount of work and attention a man gives to his business during the stress of the busy season, compared with what he does during the dull season, shows a wide discrepancy, and is evidence, to my mind, of a want of proper balance. An average must be struck, for no man can run at high pressure continually. However, it is not necessary to relapse into indolence during January, February and the early part of March. It took some time for me to get thoroughly awakened to a sense of this view of things. In conducting a roofing and repairing shop, furnace heating, plumbing and steam fitting business, there will naturally be rush periods, when the best that a man can do will be forced from him. He naturally has to use foresight to arrange the many things that he is expected to accomplish so that they will work along in their natural sequence and will eventually be finished, even if not as quickly as some customers desire.

Know Your Stock.

Now, if the same amount of scheming and foresight is used during the dull season a decided benefit will be derived. It is not enough for the head of the house to keep in touch with the price of goods in the market and where the thousand and one things he is called on to buy can be purchased at the lowest figure. He must be just as alert to see that nothing goes to waste around his own place, and know everything that he has in stock awaiting a buyer. When I did a very much smaller business than I now do I did it as the majority of small dealers do—mostly in my head. I never took account of stock, and if a pile of old grates and fire bricks did not bother me, I did not bother them, and they lay there from one year's end to another, representing so much cash permanently invested, and made money tight with me when just a little energy and activity of mind would have given me the little additional working capital that would have made affairs much easier. I soon acquired the habit of taking account of stock at the first of the year. I have advanced in this so that I am now continually taking account of stock. There is nothing in any hole or corner in my whole place, whether it is Iron Pipe, Lead Pipe, Planished Iron, Tin Plate, Stove Repairs or odd fittings, but what I know about and have record of.

Encourage and Direct Help.

Human nature is very similar the world over, and it is useless to expect those who are hired in various capacities to take a deeper interest in your affairs than you do yourself or to be eager to handle dirty, dusty, long forgotten stock, stowed away so as to occupy the smallest amount of space in the most obscure and least used corner. If there is such a corner in your place it is a reflection on you as a business man. You can never know all you have in stock if these things are not handled occasionally and kept clean. A clean shop, warehouse and store have attractions not only for customers, but also for your help, and if the habit is once instilled into them of keeping things clean and knowing what there is in stock they are much more profitable assistants and do better in their daily work. Those who work must find pleasure in their work or else life will be a burden to them and they will neglect their work in seeking pleasure in other channels.

Cash Out of Waste.

These few observations from my experience lead me to suggest to the tinsmiths, plumbers, steam fitters, furnacemen, roofers and cornice makers, as well as those who run a store, selling Stoves, House Furnishing Goods and Hardware in connection with these trades, that they cannot be better occupied during the next two months than in assorting all their dead stock, and where necessary placing tags on it stating plainly what it is and the price asked for it. If a list is also made of such stuff as cannot be readily kept in full view, and those who do the selling are made to cross off what they sell, the stock will begin to move, and the list on hand will be more frequently sought to satisfy the needs of customers. In many shops too little attention is paid by the master mind in directing the men who do the work. The time spent by a journeyman plumber or steam fitter in sorting over the bins to get the various fittings in places where they belong will be more than repaid in the time saved when he is engaged on actual work in being able to put his hands quickly on just what he wants. Many of the odd pieces of Iron Pipe that accumulate in many shops can be cut into Nipples of different lengths, and all the Pipe provided with a good thread on each end. This will make available material that otherwise is wasted. Tin Scrap can be cut into roofing cleats and pieces of Tin that are suitable for making different kinds of ware can be sorted in different sizes and kept in the racks, so that those who do repair work can utilize an odd piece without a waste of time. The same thing holds good in reference to Black Iron, Galvanized Iron and Planished Iron. In sorting this stock the need of racks for keeping them separated will be found, and at the same time the size and shape of the racks can be readily determined.

Keep Tools in Repair.

It is also a good time to overhaul all of the shop machine tools and hand tools and to put them in good order. Oftentimes the replacing of some small part will render some machine or tool satisfactory to use, where without the repairs it simply represents a waste investment, as the tool is inefficient for service and is avoided by the workmen. This is a good time of year to allow the assistants nearest the head of the house to run the business, for there is little doing that will not run itself, and the head of the house can let go of the direct management and view the business from a distance as an expert, to discover what changes would be essential and how the different employees can be used to better advantage.

Don't Work, Manage.

It will strengthen the confidence of the assistants to have the entire charge of affairs and to be required to make comprehensive reports to the head, and it will afford the head time to see prospective customers and to canvass for building up his trade, with the knowledge and confidence that things at his place of business are being run systematically and to the best possible advantage. I know that some of the older men who have not acquired the habits which I suggest and recommend will find some difficulty in breaking away from old customs. I would say to them that the greater the difficulty they find in breaking away the greater the need of breaking away.—*The Metal Worker.*

Clapp & Boughman have purchased the stock of Hardware formerly owned by Randall & Fair, Cherryvale, Kan. They intend to add to the stock materially, and will put in a lot of new store fixtures. They expect to carry a full line of Hardware, Stoves, Tinware, &c., and will also conduct a plumbing and tin shop.

Marcum & Dack have succeeded Doxsee Bros. in the Hardware, Stove and Lime and Cement business in Rolfe, Iowa. The new firm have remodeled the interior of the store and renovated it generally.

Eighth Annual Meeting of the New England Hardware Dealers' Association.

THE eighth annual meeting of the New England Hardware Dealers' Association was held at the United States Hotel, Boston, Wednesday evening, February 13, President Burditt in the chair. The records of the last meeting were read and approved, after which Secretary Farless submitted his annual report, which was accepted and placed on file. Mr. Farless' report was as follows:

Report of Secretary Farless.

Not long ago I had the extreme pleasure of hearing an address from one of Massachusetts' noble women, Mrs. Mary A. Livermore. She prefaced her remarks

S. D. BALKAM, First Vice-President.

by saying that what surprised and pleased her most at 80 years of age, was that she was here and able to stand up and address the large number who had come to hear her. Now what surprises me to-night is that yesterday, having passed my seventy-fourth anniversary, I am here to offer the eighth annual report of the secretary of this association. It is with pleasure that I have to state that the eighth anniversary finds this association in a healthy condition. Our membership is about the same as usual. We have no indebtedness, and have a balance to our credit in the treasury.

During the past season we have had nine monthly meetings, seven Executive Committee meetings and two Investigating Committee meetings. The meetings were all well attended and very harmonious. At the annual meeting in February the following officers were chosen: President, George W. Burditt, Cambridgeport, Mass.; first vice-president, S. D. Balkam, Jamaica Plain, Mass.; second vice-president, M. A. Chandler, Boston, Mass.; third vice-president, E. C. W. Bliss, Boston, Mass.; secretary, James A. Farless, Boston, Mass.; treasurer, Henry M. Sanders, Boston, Mass. Directors: Hiram G. Janvrin, Boston, Mass.; D. Fletcher Barber, Boston, Mass.; John B. Hunter, Boston, Mass.; Anthony S. Morss, Boston, Mass.; Elisha J. Neale, Lowell, Mass.; Bion C. Pierce, Taunton, Mass.; W. E. Plumer, Somerville, Mass. The special guest of the evening was William Chamberlain of Portland, Maine, who made an able address, taking for his subjects, "Competition in Trade" and the "Advance in Prices and Its Effect Upon the Hardware Trade." Messrs. Van Buskirk and Blackmer furnished the musical entertainment.

At the March meeting the annual reports of the secretary and treasurer were read. Four new members were received. The Pricing and Investigating committees were elected. Charles Clark Adams and Samuel A. Bigelow were the principal guests of the evening. The former made an interesting address on what he had seen abroad, especially in Brussels, Belgium and neighboring cities. The latter made an able address relative to "The Advance of Prices and Its Effect on the Hardware Trade." The Investigating Committee sent an invitation to a number of the prominent manufacturers of Builders' Hardware. This invitation was generally responded to. President Burditt stated that the object of the meeting was to see if some plan could be devised whereby Hardware shall be sold to the contractors by retail Hardware firms. The chairman appointed a committee of five to take the matter into consideration—viz.: J. B. Hunter, Boston; D. F. Barber, Boston; H. G. Janvrin, Boston; E. A. Loomis, Providence, R. I., and S. H. Thompson, Lowell.

At the meeting in April the subject of discussion was "What New Line of Goods Can Be Added to the Retail Hardware Stock that Can Be Sold with Profit to the Dealer?" The matter was fully discussed by the members.

At the May meeting the committee of five appointed in March forwarded a resolution to all manufacturers of Builders' Hardware doing business in New England. Charles E. Adams of Lowell made a pleasing address.

The summer outing in June with ladies was enjoyed with a dinner at the Atlantic House. The weather was charming, and we all had a delightful time. The music was furnished by the Ladies' Royal Orchestra Club, Mae Parks, manager; Mrs. E. M. Richardson favored the company with some artistic solos.

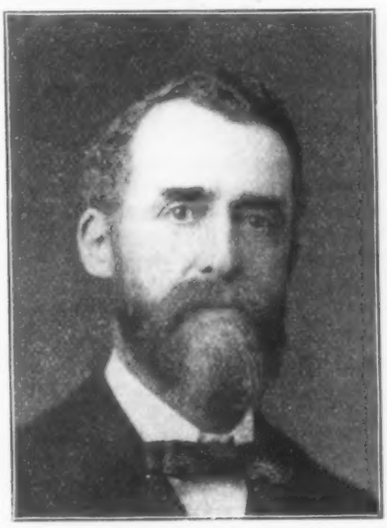
At the September meeting the replies to the circular, under date of April 25, were read, and not being satisfactory the committee of five, who have this matter in charge, were instructed to confer directly with the American Hardware Association, either by writing or by sending delegates. The musical entertainment was by Messrs. Van Buskirk and Blackmer.

The October meeting was addressed by the Hon. Williard Howland of Chelsea. His topic was the "Industries of the Country."

At the November meeting the association was entertained by Robert Luce of Somerville. He spoke upon the subject of "Taxation Problem."

The Ladies' Night in December was largely attended; it was a perfect success. The special speakers were Rev. Sarah A. Dixon of Tyngsboro, Mass., who spoke on "A Plea for Perspective;" Rev. O. S. Davis of Newtonville, Mass., on "The Outlook of Life," and Elisha J. Neale of Lowell, who responded to the toast "Our Lady Guests." The music was furnished by the Ladies' Orion Orchestra, with basso solos by Mr. Van Buskirk, accompanied by Miss Allard.

You will remember at the annual meeting in February, 1898, I referred to the wholesale and retail dealers in Hardware that I had done business with in 1848.



M. A. CHANDLER, Second Vice-President.

Of this list of wholesalers all have passed away. The last was Robert G. Living, who died September 15, 1894. Of the retailers referred to at that time, all are still living—viz.: Nathaniel B. Doggett, Anthony S. Morss, George T. Carter, George Allen, Martin L. Bradford, George H. Saunders and Nathaniel C. Stearns, each and all of them are about town as usual.

I am mindful that we are under many obligations to the editors and managers of the Hardware magazines. They are always ready to assist us in doing anything that will further the interest of our association, therefore I extend to them our sincere thanks.

Treasurer Sanders followed with his report, which was very satisfactory, and showed the financial affairs of the association to be in good condition. The report was accepted and placed on file.

Election of Officers.

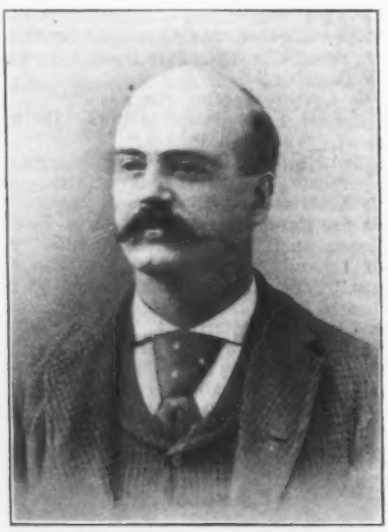
On motion of E. J. Neale the following list of officers as submitted by D. Fletcher Barber for the committee, were elected by the secretary casting one ballot:

President,
Geo. W. Burditt, Cambridgeport, Mass.
Vice-President,
S. D. Balkam, Jamaica Plain, Mass.
Second Vice-President,
M. A. Chandler, Boston, Mass.
Third Vice-President,
E. C. W. Bliss, Boston, Mass.
Secretary,
Jas. A. Farless, Boston, Mass.
Treasurer,
Henry M. Sanders, Boston, Mass.

DIRECTORS:

D. Fletcher Barber, Boston, Mass.
J. B. Hunter, Boston, Mass.
H. L. Sawyer, South Framingham, Mass.
John M. Fiske, Natick, Mass.
E. F. Turner, Boston, Mass.
John H. Robinson, Hudson, Mass.
John Duncan, Boston, Mass.

On motion of E. J. Neale it was voted that the committee of five appointed April 25, 1900, having in charge



E. C. W. BLISS, Third Vice-President.

the resolution relating to the manufacturers selling direct to the consumer be given full power to make any terms that will be satisfactory to all parties.

The president then introduced Samuel A. Bigelow of Bigelow & Dowse Company, who addressed the company on "The Outlook of the Hardware Trade for the Coming Season."

Mr. Bigelow's Address.

We have been taught to judge the future from the past. Who believes this is a good maxim to follow to-day? The many changes have made it impossible. The merchant who does not keep up with the times gets left in the race. We were told at a late dinner of the New England Iron & Hardware Association how business was done in the early and middle part of the past century. How it was dishonorable to seek to take away a neighbor's customer. How necessary and reasonable it was to ask and get a good profit on all sales. How usual and how pleasant it was to have a good and satisfactory credit balance to our profit and loss account at the end of each year. How the Hardware dealer then was prominent and respected in church, in society and in the business community.

Have the later generations improved on the teachings and examples of their predecessors? I venture to say they have not. Two years ago the Hardware trade was in a worse condition morally, physically and financially than ever before.

THIS CHANGE FOR THE WORSE

has been going on for many years. I cannot say that the first two conditions have changed much to-day, but the latter must have improved on account of the rise in values brought about by gigantic combinations and consolidations, but not by any changes in our manner of selling. The application and hard labor demanded of employees in the past is not possible to-day. The days when clerks commenced at the foot of the ladder and did menial work with a small salary, and earned promotion only by merit, are things of the past. Notwithstanding it instilled in them a knowledge of the business they could get in no other way.

JAMES A. FARLESS, Secretary.

THE MODERN YOUTH

must start higher up the ladders, and porters must do the work and drudgery that were forced upon their predecessors. In his own mind his average intelligence is higher, and he usually claims to know more of the business in two or three years than his predecessors did in ten. What he lacks in knowledge he makes up in cheek. Promotion finds this man selling your goods and attending to your business. If he lacks honor he brings deceit and shady ways to do a customer, and will do you in the end.

Too many houses are dependent upon men who have

TOO LIMITED KNOWLEDGE OF THE BUSINESS

and who aim to make a record in volume of sales, without regard to the profits of the same. This class of help

HENRY M. SANDERS, Treasurer.

does more to demoralize profits than any other. I do not think any of us knowingly will encourage such men, but I do think if we made a careful investigation we would in a degree remedy this evil.

GOING TO THE CONSUMERS.

These are not the only conditions that prevent us from realizing the proper return for our labor and capital.

you have a just cause to complain if the wholesale dealer solicits orders from the consumers—but a wholesale house deserving of your patronage will not do this. It is a burning shame when manufacturers assume this role of going direct to the consumers for orders.

It is a small compensation when they deal out such a pittance as they deem best, and soothe the feelings of one house after securing orders direct from consumers, while all the rest are left to suffer without any consolation.

CHANGING THE CONDITIONS.

That the evils I have mentioned exist, and bid fair to continue and increase, I believe you will all agree with me.

Now how are these conditions to be changed so that we may all receive the value of our labor and live happily and peacefully in the new century? My answer is consolidation. It has made mighty strides in the last few years, and it will continue until the manufacturers of kindred lines will all be under one management, producing at a minimum cost. The wholesale dealers in leading centers will unite, and, with a large capital and small expense, will market the products of these manufacturers at a less cost and with less friction than is done to-day, for this will eliminate the competition of the factories. The retailers, too, shall join hands and the progressive ones will unite, and, under one management, will regulate prices and realize profits not known since the first of the past century. Consolidation will weed out the weak and incompetent, and will raise the moral financial standard of the Hardware trade.

At the conclusion of Mr. Bigelow's remarks the following members were called upon to speak upon the subject: Messrs. Barber, Balkam, Hunter, Neale, Tarbox, Nichols, Pierce and Richardson. The discussion was very interesting and much enthusiasm prevailed throughout the meeting, which was one of the most successful in the history of the association.

The Hardware Dealers' Association of New York City.

THE retail Hardware merchants of New York, who, like those in other cities, have suffered from existing trade methods and conditions, have been getting together with a view to forming an organization through which their mutual interests will be safeguarded and advanced. After repeated conferences and a careful survey of the circumstances and situation, a permanent organization under the name of the HARDWARE DEALERS' ASSOCIATION OF NEW YORK CITY has been formed and has already secured the enthusiastic support of about 35 of the leading Hardware dealers in Greater New York. This action has been taken after careful consideration, and the association promises to be resultful in accomplishing much for the benefit of the trade. Its officers are as follows:

President, W. EDGAR PRUDEN.
Vice-President, THEODORE B. WILLIS, T. B. Willis & Bro.
Secretary, EDWARD C. VAN GLAHN, White, Van Glahn & Co.
Treasurer, L. E. LANDON, Landon & Co.
EXECUTIVE COMMITTEE:
BELDEN J. ROGERS, Hull, Grippen & Co.
R. N. BRUNDAGE, Patterson Bros.
A. W. GERSTNER.
WILFRED WEEKS, Jackson & Cowenhoven.
BERNARD B. NEAL, Neal & Brinker.
President, vice-president, secretary and treasurer, *ex-officio*.

The association promises to grow in size and influence, as it will probably have associated with it some of the prominent dealers of nearby cities, such as Paterson, Newark and Jersey City, whose interests are closely allied with those of the metropolis. It is not unlikely that this new association will have relations with others already existing, such as those in Boston and Chicago, cities in which conditions are not dissimilar to those in New York, and where similar difficulties and abuses are encountered. This latest organization, in view of the position and character of the houses constituting it, is likely to have an important influence in the trade.

J. J. Haas has entered into partnership with J. C. Richards at Farmer City, Ill., under the style of Richards & Haas. Their line comprises Hardware, Stoves, Sporting Goods, &c.

Letters from the Trade.

Our readers are invited to discuss in these columns questions of trade interest connected with the manufacture or sale of Hardware. We shall be pleased to have a free expression of opinion on subjects deserving the attention of Hardware merchants and manufacturers.

Holiday Trade.

Recalling the articles we have published in regard to the cultivation of holiday trade, the following letter from Hardware merchants in North Dakota is of interest as indicating the success of the experiment which at the suggestion of these articles they made during the holidays just past:

This past Christmas was the first we ever made a real hard attempt for such business, but noting the many articles published in your paper in November and early December it seemed to us that if other Hardwaremen made a success at it we could do no worse than make a failure of it. So we sorted up on many lines enumerated as desirable ones, and I am very much pleased to report that we are gratified with the result of the first year's experiment and believe next year we can do very much better.

Meaning of C. I. F.

In the following communication from a New Jersey correspondent a brief explanation is given of the meaning of the term C. I. F., which in its application to some special cases has been discussed in these columns:

Probably I can help your readers and correspondents to define the meaning of "C. I. F." For example: Goods are bought at Birmingham C. I. F. New York. C. means carriage from Birmingham to Liverpood, I means maritime insurance Liverpool to New York, F means ocean freight from Liverpool to New York.

In England the term "carriage" has the same meaning as "railroad freight charges" in America.

Percentage of Decline in Hardware.

We are in receipt from a Pennsylvania house of the following inquiry in regard to the decline which has taken place in Hardware during the past year. We submit the inquiry to the trade, and shall be glad to have advices in regard to it:

We would be interested in seeing a discussion or expression of sentiment through your columns by leading Hardware jobbers handling a miscellaneous stock of Hardware in connection with Heavy Hardware, Iron, Steel, Nails, &c., in regard to the approximate percentage of decline in values during the past year on the general stock carried by them. We have no doubt that this will be a subject of interest to many readers of *The Iron Age*.

Inter-State Retail Hardware Dealers' Association.

THE annual meeting of the Inter-State Retail Hardware Dealers' Association will be held at the Sherman House, Chicago, March 6. This date has been selected so that if possible delegates can take advantage of the spring meetings called by the National Association of Merchants and Travelers, the third convention of which enables visitors to purchase tickets good for period March 2 to 16 on the certificate plan.

Each State affiliated with the Inter-State Association will be represented by two delegates appointed at the State convention just prior to the Inter-State meeting, and it is expected that some new States will send delegates to complete affiliation at this time.

The sessions of the meeting will be executive, and none but delegates will be permitted to participate.

The store of the Tarentum Hardware Company, Tarentum, Pa., was recently robbed of $100 worth of goods.

Kentucky Retail Hardware and Stove Dealers' Association.

THE Kentucky Retail Hardware and Stove Dealers' Association held its first annual meeting at Lexington, Ky., on February 12 and 13. The meeting was well attended, nearly all of the members of the association being present.

The meeting was called to order by the president,

GEO. DEHLER, Jr., President.

Geo. Dehler, Jr., of Louisville. The following new members were taken in during the first session on the 12th:

J. L. Malin, Vine Grove.
A. A. Grief & Son, Vine Grove.
Geo. B. Minary, Versailles.
J. T. Vance, Lexington.
Van Deren Hardware Company, Lexington.
Smith, Watkins & Co., Lexington.
W. J. Houlihan & Bro., Lexington.
H. A. White, Lexington.
T. A. Hornsey, Lexington.
L. P. Milward, Lexington.
G. H. Watts, Georgetown.
P. C. Sower & Co., Frankfort.
A. Steitler, Jr., Owensboro.
Shacklett, Thomas Hardware Company, Fulton.

Making a total membership of 45, a very creditable showing for an association only five months old.

The afternoon session was taken up by routine business and hearing the reports of the president and the secretary.

President's Address.

The following is President Dehler's address:

As a rule Hardwaremen are not speech makers, and I must confess that I am no exception to the rule, and standing before you to-day as president of the Kentucky Retail Hardware and Stove Dealers' Association I feel just a little "out of place." Had I before me, in the place of this intelligent body of retail Hardware merchants of this State, so many list prices with a string of discounts to figure out, I would consider myself very much more at home. But as this is a duty which has fallen to me to perform I will, with your kind consideration, do my best.

This association was organized in Louisville, Ky., on September 26 and 27, 1900, and while the number of retail merchants in attendance was not as large as hoped for much enthusiasm was displayed by those who showed their interest by their presence.

Our secretary has spent a great amount of his time sending out constitutions, by-laws and circulars, and we had hoped to have prepared a regular programme to govern this meeting, but found it impracticable at this time. No doubt all of you assembled here to-day have received a copy of the invitation sent out by our secretary.

If none of us had ever thought of the questions put to us in this circular letter before receiving the same I am sure we all gave the numerous subjects touched upon more or less consideration after perusal. And it came to my mind that this circular would give us ample substance for discussion at this meeting.

NECESSITY OF ASSOCIATION.

No doubt all of you assembled here feel the necessity of a State association for the retail Hardware and Stove dealer. It is only by associating together that we can accomplish anything against the many wrongs perpetrated against us from day to day. No single retailer, no number of retailers in any one city, not even the strongest State association, can hope to remedy the evils staring us in the face to-day. But I do believe that by a co-operation of States almost all of our grievances can be adjusted to our mutual benefit. In what manner this can be accomplished, and by what methods, is a question which will need careful consideration, and that is why we are here. That each and every member of this association will derive some benefit from having come to this meeting is in my mind an assured fact. Our exchange of ideas and views on the different subjects to be brought before us cannot help but be beneficial to some of us.

One or the other of you perhaps think you have more than your share of trouble in your business. To you I would say, Hear the complaints of your brother Hardwaremen, and be the happier after.

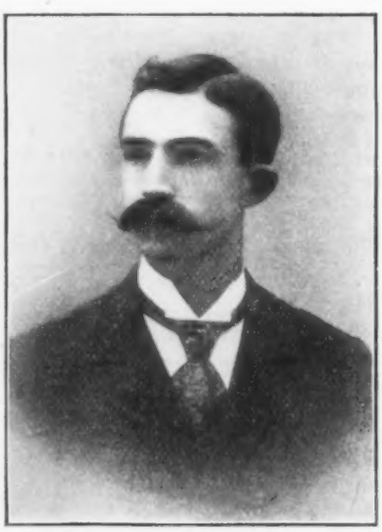
When I said a moment ago that not even the strongest State association could remedy the wrongs done us, I did not mean that we could do nothing to lighten our burdens. For I do believe that any one State association by a strong co-operative combination can handle most of the regular, legitimate Hardware and Stove jobbers; but when it comes to dealing with the catalogue houses and department stores, who buy from the manufacturer direct, we must take refuge in the co-operation of the various States. And it will take more than a few.

THE EFFECT OF UNITED EFFORT

This fact alone should induce every retail Hardware and Stove dealer to join his State association, as only by so doing can he become a member of the Interstate Association. Can you imagine the result of 5000 retail merchants refusing to market a certain article manufactured?

Can you picture in your mind 5000 retail dealers refusing to purchase any of their wares from any one jobber, because he persisted in retailing goods himself?

These things can and will be done, if you say they shall be done. The time for action is at hand and it behooves us, one and all, to buckle our armor of independence a notch tighter, face the dangers confronting us and do battle against our adversaries as one man. Thus alone can we expect to be victorious, and shame upon the retail Hardware and Stove merchant who will sit



J. S. OGDEN, First Vice-President.

quietly back with folded arms to await the result of his fellow retailers' determined battle for his rights.

Gentlemen, thanking you for your kind attention to these few remarks, and hoping that our deliberations in the coming sessions of this meeting will bring about a better feeling among us all, and also bring us nearer and nearer to the desired goal.

Paul Wagner, secretary of the association, made the following report:

Report of the Secretary.

The length of a secretary's report depends upon the amount of work done by him, and the amount of work done generally depends upon the size of the business in which he is engaged. I believe, though, the rule is reversed when we come to association work.

To organize a State association of business men is no small matter, as all past and present State association secretaries will confess, and it is much less difficult to

CHAS. D. WINN, Second Vice-President.

hold them together when they have once become members than it is to get them into the association.

The first secretary has a great amount of work to do, without any apparent results at all. He sends out circulars and pamphlets that he has carefully prepared, so that they may be readily understood. A few days after he probably receives five or six letters asking for an explanation of the circular. This, of course (though it gives him more work), makes him feel as though some one is becoming interested, and he goes after him again with renewed vigor. But, alas! the hoped for card of membership, accompanied with the necessary dues, fails to materialize, and he must seek others who might become interested.

To give an idea of the amount of work done in the last 11 months I must go back to the beginning, when Samuel Korb, secretary of the Louisville Retail Hardware and Stove Dealers' Association, by request of the above mentioned association, secured the names of some 450 retail Hardware dealers of the State and sent to each of them a "Question and Information Blank," to which he received 42 replies. Twenty-two merchants said they woud attend the meeting at Louisville, and of these 16 made themselves conspicuous by staying away.

Nothing daunted, we kept at it and organized this association, on September 27 and 28, and wound up with a membership of 31. Two members have since been added, making a total membership to-day of 33.

As instructed by the Executive Committee the secretary had 1000 copies of the constitution and by-laws printed, also 500 copies of membership cards, together with 500 copies of the resolution offered by Mr. Korb. During the month of November I mailed to all retail Hardware merchants of whom I had knowledge (about 450 in all) a copy of the constitution and by-laws, with a membership card. To the members I sent in addition a copy of the resolution before referred to. This resulted in adding the two members above referred to to the original list of 31 members.

February 1 and 2, 1901, I mailed to every merchant on the list in my possession the following circular. [Mr. Wagner read the circular, from which we make the following extracts]:

HAVE YOU EVER THOUGHT SERIOUSLY

Of the need of a State association for retail Hardware and Stove dealers?

Of the benefits derived from being a member of such an association?

Of the inroads being made into your business by the catalogue houses and department stores?

Of the amount of merchandise the jobbers are selling directly to your own customers?

Why peddlers can buy from a jobber or manufacturer and sell cheaper than you can, though you buy in larger quantities?

Why you and your competitor are not getting along as well as you might?

Why the retailer to-day only markets from 75 to 85 per cent. of the leading Hardware staples, when a decade ago he distributed from 90 to 95 per cent. of the same goods?

Who is selling the balance?

How these evils can be remedied?

Of the fact that Michigan, Missouri, Indiana, Iowa, Kansas and North Dakota have each a State association?

Of the advantages derived from being a member of the Kentucky Retail Hardware and Stove Dealers' Association, organized in Louisville, October 26 and 27, 1900, and thereby becoming a member of the Interstate Retail Hardware Dealers' Association, organized in Chicago, March 12, 1900, and consisting of the above named State associations?

If you have not thought of these things, do so at once, and do so quickly.

Do not let the band wagon pass by and then jump on behind, but come in before we are off at full speed.

Become one of the hundred threads to make the strong cord, which, when interwoven with the other numerous cords of protection, will bear limitless weight.

You can have some of the above questions answered by attending the first annual meeting of the Kentucky Retail Hardware and Stove Dealers' Association, to be held at Lexington, Ky., on February 12 and 13, 1901.

State organizations have become the order of the day, and State pride should prompt us one and all to bring our "Old Kentucky" to the fore.

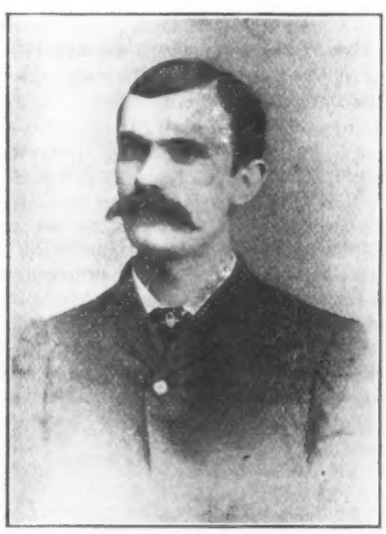
The organizations are no longer an experiment. They have proven beneficial to the members collectively, as well as to the members individually.

It remains with you if our State association shall be a success or failure.

"United we stand, divided we fall." Which shall it be?

This circular was answered by four merchants, all of whom expressed themselves interested and expected to meet us here to-day.

Our worthy president has seen fit to arrange a programme for us, and under existing circumstances I heartily approve of his plan of procedure. I would like



HENRY HEICK, Treasurer.

especially to have one question fully discussed. This question was forcibly brought to my consideration by a letter received a few days ago, running something like this: "Please let me know how I would be benefited by your association if I am a member? Would gladly go into it, for the retailers certainly need protection, but how to get it is the question with me." I wrote this gentleman to come to this meeting and tell us how he would do it, and then find out how we would go about it. I hope he is here to-day, but doubt it.

On February 8 at 4 p.m. I received a letter from our second vice-president, Mr. Winn, informing me that he had secured for us, through the efforts of J. T. Vance of

this city, a one and one-third rate of fare over all roads leading into Lexington. I at once communicated through telephone to the majority of the Executive Committee and was advised to mail at once 400 postals to the respective retail Hardware merchants of the State. Twenty-four hours after receiving the letter from Mr. Winn the 400 postals advising that many merchants of the advantageous rate were in the post office, ready for distribution to the various parts of the State. I hope they reached their destination in time to bring a score or more of merchants to these meetings.

This, gentlemen, will give you an idea of what has

PAUL WAGNER, Secretary.

been done in the last few months, and I assure you if our meeting at this time is not a success it will not be the fault of those assembled here to-day.

Before bringing this report to a close allow me to call your attention to the various trade papers, who are ever ready to extend a helping hand to further association work. *The Iron Age*, *Hardware Dealers' Magazine*, the *American Artisan* and the *Stoves and Hardware Reporter* have graciously tendered their columns to us for any matter we may wish to make known to the Hardware trade in general.

The Wednesday Morning Session

was opened at 10 o'clock and was a very interesting one, especially to the new members.

W. P. Lewis of New Albany, Ind., and a member of the Indiana Retail Hardware Association, was present by special invitation and addressed the association. Mr. Lewis said that the retail Hardware and Stove dealers should take a broad view of the situation, concentrate their efforts, and where they find their rights being trespassed upon use these concentrated efforts in all lawful and legitimate ways to regain that which has been taken from them by the unscrupulous jobber and manufacturer.

Following Mr. Lewis, Samuel Korb, secretary of the Louisville Retail Hardware and Stove Dealers' Association, read the following paper:

Samuel Korb's Address.

I believe, as a rule, it is better most of the time in making an address to confine the remarks as much as possible to some particular subject, but in my address to you to-day I shall deviate somewhat from that rule and just take a crack at different things as they may come to my mind, especially if they shall have any bearing or connection with the work of the Kentucky Retail Hardware and Stove Dealers' Association or any association of similar character.

I will commence with a part of my experience as organizer and secretary of our Louisville Association. I believe that the credit will not be denied me of having been the first to take active steps in forming in Louisville a retail dealers' association, but without the active assistance of other brother merchants I, of course, would have met with defeat instead of success.

We now have reason to feel proud of our local association, as we have a membership composed of the representative retail dealers in Hardware, Stoves, &c., doing business in Louisville and vicinity.

A TRYING STRUGGLE.

At the first meeting I was elected temporary secretary, and when the association was formed I was elected to the position of secretary to that body. Then my struggle for more members commenced. First I was under the impression that the retail dealers would at once jump at the chance to belong to an association formed for the express purpose of alleviating the many evils which had been clinging for many years to their business, and which, instead of diminishing, were growing to such an extent as to make the present as well as the future positively alarming to the thinking retail merchant. The charter membership was certainly gratifying in quality and number, but after that it at times seemed almost necessary to implore others with tears in our eyes to get them to join for their own good as well as ours. Some seemed to feel that they were being gold bricked and others seemed to believe that the association was formed for the benefit of a few and not the many. In spite of such obstacles, though, success crowned our efforts.

LAY THE MATTER BEFORE YOUR COMPETITOR.

The Louisville Association is a success in point of number and quality of its members, and the relations between the members are such as can be termed extremely cordial. This was brought about by the members of our association visiting those dealers who were not members and inviting them to join. I will state to the members of the Kentucky Retail Association that it is a duty they owe to themselves as well as their association to do all in their power to get their competitors to join their association. Do not depend on the secretary alone to do this; he needs your help and a great deal of it.

Go to your competitor, give him the hand of good fellowship, and explain to him that his interests are identical with yours, and that you need this help and that he needs yours in order to eradicate many evils with which you and other retail dealers have to contend.

Such a conversation will make him your friend, and even though you do not succeed in making him a member you will have accomplished a great deal otherwise. If he refuses do not give up too easily, but go at him again; you will finally land him. If necessary, offer to refund his initiation fee to him if he becomes satisfied that he made a mistake in joining. Your association, I am sure, will back you up in the offer.

THIS ASSOCIATION IS FORMED EXPRESSLY

for the purpose of protecting the retail dealer against the manufacturer or jobber who sells to that class of trade called consumers, and whose trade should be controlled by the retail dealer.

Some of the retail dealers may believe that they have

WILLIAM DEHLER, Assistant Secretary.

to contend with greater evils, such as catalogue houses, &c. This may be so in some instances, and I believe that in due time, through the influence of the combined State associations, the harm done to the regular retail dealer in Hardware, Stoves, &c., by catalogue houses and similar institutions, will be greatly lessened if not entirely eradicated. But for the present I shall keep my guns trained on the retailing manufacturer or jobber, and shall pour hot shot after hot shot into him until either he or I am put out of the business.

What is his relation to the retail dealer? He pretends to be your friend; he loves you so much that he

considers it gross ingratitude if you do not buy from him alone. He tells you that it is your patriotic duty to keep your money at home and not send it away for goods bought elsewhere. You should not mind a little thing like him selling to consumers, even if they are your customers.

If he backs his wagon up to your store and unloads a nice bill of goods at your door you should not complain if he goes right down the street or up the street and delivers goods from the same wagon to your customer.

Or if you are a country merchant and should happen to go to the freight station to get a lot of merchandise which he sent on your order, and right at the side of your lot you discover another lot which he shipped on order of your customer, you should not complain, even if he did sell to him at the same price that he did to you.

If you let him, and he believes you are able to pay him, he will fill your shelves with goods, and if you are not careful they will remain just where you placed them indefinitely, for he loves you so much that he desires to take the trouble of waiting on your customers off your hands. He will take care of your customers, and will sell them himself, and if you happen to catch him at it he may possibly divide the profits with you.

He would learn you to be vigilant. If you don't catch him he won't reward you, and he won't reward you every time you catch him, as that is too monotonous. Once in a while suits him, and ought to suit you if you aren't too hard to suit.

NOW, SUCH MANUFACTURERS AND JOBBERS

are, in my estimation, the most objectionable competitors we have to contend with, and the fool retail dealers—excuse the expression—do not seem to appreciate this fact.

Now, then, is it wise to buy from such a competitor—for he is your competitor? Are you not building him up at your expense if you do so? Is not he undermining the very foundation of your business?

He buys large quantities and buys them cheaper than you or I can; consequenty sells cheaper than you or I can. By reason of the retail dealer buying from him he is able to buy thus. And just as long as he can control the trade of a large number of retail dealers so long will he be able to enter into direct or indirect competition with them on an unequal basis.

TO THOSE MERCHANTS NOT AFFECTED.

There are some retail dealers who congratulate themselves upon not being affected by such competition as I have described. To such I will say that the evil is far reaching, and, like a plague, it spreads, and unless a rigorous quarantine is established at once the disease will be beyond the control of the retail dealers, and country as well as city and town merchant will feel its effect.

To the country merchant I am in a position to state that thousands of dollars' worth of merchandise are sold annually by these retailing jobbers and manufacturers direct to the farmers, and in some instances, in an indirect way, through purchasing agents, tobacco houses or some other sources which would deprive the retail dealer of his legitimate profits.

We are all in the same boat, or, more properly speaking, in different boats of the same kind. All of our boats leak and we must devise methods to stop these leaks. If we do not stop them at once we will all go down, if not all together, then one after the other.

The balance of the morning session was taken up with short addresses and discussions, in which the following gentlemen participated: Chas. D. Winn, Paris; W. T. Chilton, Campbellsburg; J. T. Vance, Lexington; John R. Sower, Frankfort; J. W. Mahan, Lawrenceburg, and others.

AFTERNOON SESSION.

The Executive Committee appointed a merchant in each Congressional district, whose duty it shall be to assist the secretary in securing new members. By this plan it is expected to increase the membership to 100 by the next annual meeting. The gentlemen thus appointed, are the following:

First District, U. S. Shacklett, Fulton.
Second District, A. Steitler, Jr., Owensboro.
Fourth District, J. L. Malin, Vine Grove.
Fifth District, Wm. Dehler, Louisville.
Sixth District, W. T. Chilton, Campbellsburg.
Seventh District, G. H. Watts, Georgetown.
Eighth District, J. W. Mahan, Lawrenceburg.
Ninth District, J. S. Ogden, Ashland.
Tenth and Eleventh districts, Charles D. Winn, Paris.
Lexington District, Mr. Van Deren of Van Deren Hardware Company.

Also fully decided to join the Interstate Association at once, and Paul Wagner was elected a delegate to represent the Kentucky State Association at the next meeting of the Interstate Association on March 6 at Chicago.

It was unanimously agreed that all officers who had served during the past five months should hold over until the next annual meeting.

Louisville was selected as the next annual meeting place, second week in February, 1902.

Requests for Catalogues, Quotations, &c.

The trade are given an opportunity in this column to request from manufacturers price-lists, catalogues, quotations, &c., relating to general lines of goods.

AARON I. SANSON, JR., and Joseph M. Rowland, both well known in the Philadelphia Iron, Steel and Hardware trades, have formed a copartnership under the name of Sanson & Rowland, and will engage in the business of Iron, Steel and Hardware commission merchants at 422 Commerce street, Philadelphia, Pa. They would be pleased to receive catalogues from manufacturers of articles pertaining to the above lines.

E. L. Rich, formerly with Simmons Hardware Company, St. Louis, and Harry E. Clark, formerly with Nevius & Frampton, Easton, Md., have purchased the Hardware, Implement and seed business lately conducted by E. T. Nicols at Easton, Md. Under the firm name of Rich & Clark they will continue the business on a larger scale, handling, in addition to the above lines, Hardware, Stoves, Farm Wagons, Blacksmiths' and Wheelwrights' Supplies, &c. They will be pleased to receive catalogues, &c.

A. and B. Sommer have purchased the John M. Williams Hardware stock, at Portsmouth, Ohio, and will continue under the style of the Central Hardware Company. Adam Sommer has acted as manager of the store for the past nine years, and his brother has also had some Hardware experience. The new firm expect to enlarge the stock thus acquired, and desire catalogues, price-lists, &c.

D. H. Stinson, Battle Creek, Mich., has bought the old Dubois stock from W. A. Savage, and will continue the business at the old stand. Mr. Stinson requests catalogues and quotations from manufacturers and jobbers relating to Hardware, Stoves, Tinware, Bicycles, Cutlery, &c.

American Steel & Wire Company's Products.

A PAMPHLET has just been issued, entitled "List of Products of the American Steel & Wire Company," which will be of interest as showing the great variety of manufactures of this company. They state that the list is comprehensive in detail only to the extent necessary to give a clear idea of what they make. Many of their products cannot be briefly listed, but enough is shown to indicate the general lines and the wide range of the manufactures. The opening page of the pamphlet is devoted to Raw Material, Pig Iron, Ingots, Blooms, Slabs, &c.; Billets and Wire Rods, followed by Steel Plates and Sheets, Steel Skelp, Steel Shapes and Bars, &c.; Horseshoes, Wire, Wire Nails, Woven Wire Fencing, Electrical Wires and Cables, Springs, &c.

R. D. Cone Company's Catalogue.

R. D. CONE COMPANY, Winona, Minn., have just issued a new spring catalogue of 128 large pages, attractively showing seasonable goods, Shelf and Heavy Hardware, Iron, Steel and Wood Stock, Builders' Hardware, &c. The issuing of a catalogue of this kind is something of a new departure for them and indicates the enterprise of the company. They are to be congratulated on the contents, arrangement and attractiveness of the catalogue.

Minnesota Retail Hardware Association.

THE official programme of the fifth annual meeting of the Minnesota Retail Hardware Association has just been issued. It is an attractively printed publication of 58 pages and contains portraits of the officers of the association and of the insurance company connected with it, an imposing list of the membership of the association and a number of advertisements.

The annual convention will be held at Century Hall, Minneapolis, on February 27 and 28 and March 1, headquarters being at the Hotel Nicollet. An attractive programme has been prepared, and all the indications point to a most interesting and successful gathering.

Price-Lists, Circulars, &c.

J. STEVENS ARMS & TOOL COMPANY, Chicopee Falls, Mass.: Illustrated folder describing the Victor Roadster Bicycle, 1901 model.

WILLIAM H. MANN, Mill Hall, Pa.: Illustrated catalogue of "True American" hand made Axes.

GOODWIN & KINTZ COMPANY, Winsted, Conn.: Illustrated descriptive circular of Fancy Clocks, Gas Portables, Chafing Dishes, Vases, Ornaments, &c.

CRESCENT BRASS & IRON COMPANY, Detroit, Mich.: Illustrated catalogue "E" for 1901, showing Nozzles of their manufacture, a variety of Lawn Sprinklers on standards and with spears, the Cinch Hose Mender, the Crescent Hose Mender and Hose Couplers and Reducers.

THE NATIONAL WIRE & IRON COMPANY, Saginaw, Mich.: Catalogue of Wire Goods, Window Guards, Counter Railings, Skylight Goods, Wire Trellises and Trainers, Tree Guards and the National Stair Fire Escape.

UNION CARRIAGE COMPANY, St. Louis, Mo.: Catalogue illustrating a variety of Buggies, Phaetons, Surreys, Road Wagons, &c. The company call prominent attention to the fact that they sell for cash and direct to the trade.

BLUFFTON MFG. COMPANY, Bluffton, Ind.: Catalogue No. 20, illustrated in colors, showing Rotary, Round, Square and Open Washing Machines, and also Wringers and Clothes Bars.

Trade Items.

A FIRE occurred on Saturday evening, February 9, in the Brooklyn factory of W. R. Ostrander & Co., whose New York office is at 22 Dey street, but was extinguished before very much damage was done. It is expected that the factory will again be in operation in a short while. W. R. Ostrander & Co. report that they have a large stock of goods on hand in their New York storerooms and are able to fill all usual orders without delay.

E. H. WAYNE, who has for the last 15 years been engaged in the Hardware jobbing and commission trade in Philadelphia, Pa., has retired from business.

J. C. KUPFERLE, St. Louis, Mo., manufacturer of Hardware specialties, reports a volume of business in excess of last year at this period. In addition to the large line of articles for the Hardware trade, this concern now manufacture Counter Stools in regular standard sizes, to which they call attention in their advertisement in this issue. The Seats can be had in any desired finish.

THE ATLAS PIPE WRENCH COMPANY of New York and San Francisco advise us that the growing demand for Atlas Pipe Wrenches has compelled them to increase their facilities and they are now ready to deliver Wrenches in any quantity, and can hereafter promise immediate delivery.

IN a Special Notice in this issue the Business Men's Association of Henderson, Ky., call attention to the opening there is in that city for a first-class foundry and machine shop. They state that their factories are compelled to send off their castings elsewhere, and that single orders averaging from $1200 to $1500 have been recently contracted for.

A MEETING of the New York State Association of Hardware Jobbers was held on the 6th inst. at the Troy Club, Troy, N. Y., the members being the guests of J. M. Warren & Co. and A. E. Bonesteel of that city. After discussing trade matters the visitors were entertained at dinner.

Among the Hardware Trade.

Neelan & Roberts have bought the business formerly conducted by Fred. Shelman, Plover, Iowa, dealer in Hardware, Stoves, Agricultural Implements, &c.

A. M. Bryant is successor to Bryant & Buell in the Hardware and Agricultural Implement business in Buckley, Wash.

Harvey A. Gish, for the past three years a member of the firm of Gish Bros., Waldron, Mich., has bought the Hardware business of Frank H. Chadwick, Pleasant Lake, Ind., and will continue at the old stand. Charles M. Gish will continue the business at Waldron, Mich.

The partnership heretofore existing between F. L. Haines and A. M. Amsden under the firm name of F. L. Haines & Co., Garner, Iowa, was dissolved on the 1st inst. The business was bought by Mr. Haines, the former manager, who will continue at the old stand.

Le Fever & Boden have succeeded Le Fever & Head in the Farm Implement, General Hardware, Stove, Buggy and Wagon business at Greenfield, Ohio.

Hohmann & Voigt, Hardware merchants, Hurley, Wis., dissolved partnership on the 30th ult. The business will be continued under the style of Voigt & Christensen.

Sanborn & Robinson, Lawrence, Mass., who are large dealers in Hardware, Farming Tools, Mill Supplies, Camera Supplies, Golf and Athletic Goods, &c., have lately added a Leather Goods department. Some of the offerings in this line are pocketbooks, dressing cases, cigarette and cigar cases, drinking cups, flasks, military brushes, traveling clocks, letter cases, bill books, card cases, ladies' chatelaine bags, medicine cases, &c. In order to bring the department conspicuously before the public the firm for a limited time offered any of these articles at 20 per cent. discount from the regular selling price. They will shortly add a very complete line of Sterling Silverware. Their establishment is a new one and comprises five floors and basement.

The Hardware business heretofore conducted by the Estate of W. G. Lewis, Quanah, Texas, has been incorporated with a capital of $20,000 under the style of W. G. Lewis Hardware Company.

W. J. Nicholson has purchased a half interest in the Hardware, Farm Implement and Seed store of John W. Emison & Co., Vincennes, Ind., and the business will hereafter be conducted under the style of Emison & Nicholson.

The James Young Hardware Company have succeeded to the business formerly conducted by James Young at Redding, Cal.

Burris Bros. & Martin have succeeded Burris Bros. in the Hardware, Stove, Farm Implement and Sporting Goods business at Detroit, Texas.

S. D. Davis, Hardware merchant, Granger, Texas, has bought the general store formerly conducted by J. S. McCarty and A. W. Storrs.

B. Hutchinson has purchased the interest of E. B. Quisenberry in the Sedalia Hardware & Grocery Company, Sedalia, Mo.

U. G. Fowler & Co. have purchased the Shelf and Heavy Hardware, Stove and Sporting Goods business of D. W. Smith at Huron, S. D.

Third Annual Convention of the Iowa Retail Hardware Dealers' Association.

THE Iowa retail Hardware dealers have established a high reputation during the short career of their association for enthusiasm and well directed activity in building up a strong organization. Their meetings have been numerously attended, and their discussions have been intensely practical and beneficial. The third annual convention, held last week at Dubuque, showed that the interest in the work of their association is sustained.

The opening session was held on Wednesday morning, 13th inst., in the commodious hall of the Bank and Insurance Building. This was an informal meeting, at which considerable work was blocked out under the direction of President H. A. Cole of Council Bluffs.

The method followed was that of calling on the members and asking each one for a topic which he would like to have discussed or a question which he would like to have answered relating to the management of Hardware stores and the improvement of existing conditions. Some of the members in replying gave valuable information relative to methods of handling special lines of goods. For instance, John Randolph of Keota described a portable Oilcloth rack, which he had found very useful, and H. S. Rayburn of Montezuma gave some points on an Axe rack, which keeps handles from warping, as well as a convenient Screw rack.

During this period Secretary C. W. Brelsford of Villisca was busily engaged in receiving dues, enrolling new members and seeing that the incomers were registering their names. The following is a list of retail dealers registered as attending the convention, but the list is believed to be imperfect, as a much larger number was present by actual count:

The Register.

Q. A. Sloane, McGregor.
E. P. Messer, Sheldon.
J. H. Rebok, Toledo.
Jos. I. Forkenbrack, New Hampton.
C. Lockwood Beed, Hampton.
C. F. Schmidt, Marshalltown.
E. L. Rogers, Britt.
Wm. Schumacher, Garradville.
S. A. Foote, Parkersburg.
A. P. Petrehen, New Albin.
B. Imholt, Williams.
Chas. Hannish, Farmersburg.
Chas. F. Mauer, Council Bluffs.
A. Thomas, Trow.
Julius Rieth, Lansing.
F. W. Nelson, Gowrie.
John Randolph, Keota.
Frank Hesse, Clarksville.
A. B. Carhart, Manchester.
P. S. Narum, Waukon.
G. J. Fuehr, Dundee.
Louis Lindenberg, Dubuque.
J. F. Ris, Dubuque.
Husman & Lies, Dubuque.
F. S. Sterns, Steamboat Rock.
W. B. Reed, Decorah.
H. S. Rayburn, Montezuma.
J. S. Nelson, Fort Dodge.
J. H. Doty, West Liberty.
Thos. Larson, Eldora.
G. H. Fitch, Fonda.
T. Gilchrist, Strawberry Pt.
S. R. Miles, Mason City.
J. S. Watson, Reinbeck.
A. Muehe & Son, Dyersville.
F. M. Jaeger & Co., Dubuque.
G. W. Healy, Dubuque.
J. D. Becker, Calmar.
J. Becker, Osslan.
Anthony Anderson, Cresco.
Jas. H. Muffly, Sumner.
C. W. Brelsford, Villisca.
E. C. Chapin, Union.
W. F. Kleinpell, Elkader.
F. P. Marvin, Grinnell.
F. L. Freemar, Waterloo.
W. H. Willard, Cherokee.
L. H. Kurtz, Des Moines.
E. H. Norris, Cedar Rapids.
H. Krieger, Waukon.
H. J. Winkle, Waukon.
Joe A. Young, Bellevue.
A. M. Weber, Bellevue.
Rieff Friedman, Dyersville.
John E. Reynoldson, Manson.
G. F. Friedlein, Guttenberg.
C. M. Berkley, Waterloo.
E. G. Penrose, Tama.
P. Hoebel, Blairstown.
C. Magnusson, Lyons.
Geo. S. Lister, Manchester.
R. J. Breckenridge, Brooklyn.
C. W. Jordy, Oneida.
John F. Smith, Norway.
Wm. C. Roch, Lyons.
H. C. Hansen, Clinton.
T. W. Rogers, Lamont.
F. C. Walker, Jessup.
E. H. A. Van Sittart, Des Moines.
John G. Moser, Dubuque.
H. Strucent, Fort Dodge.
A. C. Heyness, Miles.
Peter Lang, Dubuque.

WEDNESDAY AFTERNOON SESSION.

Mayor C. H. Berg of Dubuque welcomed the association in a very graceful speech. He was followed by J. H. Shields, president of the local Business Men's League, who joined in the welcome extended by the Mayor, and proceeded to give an interesting

Historical Sketch of Dubuque,

the oldest settlement in Iowa. It is named after Julien Dubuque, a French-Canadian explorer, who located on the present site of Dubuque in 1788 when it was part of the domain of Spain. He was the patron saint of civilization in Iowa in every respect, and may be regarded as a pioneer in the Hardware trade, as he operated a Forge and employed two men in doing smith work and making Tools. He also ran a furnace, in which he smelted lead ore. After an active career he died in 1810. Those who are only familiar with the recent history of the Mississippi Valley can hardly believe that up to 1834 Dubuque had no court house. In that year the necessity of such a building was so far recognized that the local authorities felt warranted in letting a contract according to the following specifications:

Of hewed timber, 26 x 20 feet in size, walls to be 7 inches thick, first story 9 feet high, second story 5 feet to the beginning of the roof, to be divided into three rooms with two eight-light windows, to have a good stout Lock and Thumb Latch on entrance door, to be furnished with a circular pine table 2½ feet wide.

President Cole responded eloquently in behalf of the association, saying that they had gathered in Dubuque for the purpose of attempting to revolutionize the retail Hardware trade, and proceeded to set forth what they expected to accomplish in methods of doing business. He disclaimed any attempt to work up a scheme to advance prices, but expected through such organizations as the Iowa Association to drag the business out of any ruts into which it may have fallen. He concluded by calling on J. W. Conchar of the Schreiber & Conchar Mfg. Company to give the names of Dubuque manufacturers engaged in the production of goods handled by the Hardware trade. Mr. Conchar gave a list of names of such concerns which surprised most of his hearers, who were not aware of the extent of the manufacturing interests of the city.

W. A. McINTIRE, President.

As the convention was expected to hold a number of executive sessions, the president appointed J. F. Doty of West Liberty sergeant-at-arms.

Secretary's and Treasurer's Reports.

Secretary Brelsford read his report and that of Treasurer McIntire, showing that on February 1, 1900, the association had 305 members, and now has enrolled 432, a gain of 128 during the year, not including honorary members. At the close of the last annual meeting the treasurer had a balance of $621.80, received $276 for dues during the year, and paid out $707.70, leaving $190.10 in the treasury.

Grievance Committee.

The report of A. T. Nelson of Wilton Junction, chairman of the Grievance Committee, was read. It showed that but one complaint had been made to the committee during the year.

President Cole's Address.

President Cole read his annual address, as follows:

It is a privilege to address you at this, our third annual meeting. The dealers who attend this conven-

tion, held as it is in the extreme corner of the State, are to be commended for their unselfish devotion to the welfare of their fellows and our calling. No dealer can mingle with such without getting great benefit. I have never yet attended one of our retail conventions that I did not carry home with me many ideas that I could turn into dollars and cents during the following year. In looking over the past year and its results, we can undoubtedly, each one, look back on the busiest year of the past decade, not perhaps in volume of business, but made so by the fact that our shelves were loaded with high cost goods, and the certainty of a declining market staring us

E. G. PENROSE, Vice-President.

in the face. Our hustle came in to reduce stock before the drop. The warm fall, too, extending clear beyond the selling season for our heating stoves, required redoubled effort to effect a cleaning up of stock in this line. Altogether, the dealer who can point to living expenses paid and a small surplus over January 1, 1900, can congratulate himself on being a wide awake and successful merchant.

INFLUENCE OF THE ASSOCIATION.

I believe we can to-day call the Hardware roll in Iowa, and find, as the result of our association, a much better spirit prevailing between merchants in the same and adjoining towns, and many of us can see a vast difference in the pleasure of doing business because of this. I last year told you how many dollars the association had been worth to the dealers in Iowa. This year I take a different tack on the subject. I want to talk for the benefit of the dealers who are not with us to-day, who have failed to respond to our many invitations to join with us in our efforts to benefit our calling. I am going to diagnose your case, my brother Hardwareman, and try and prescribe the proper remedy.

TO NON MEMBERS.

You are either so overwhelmed with the details of your business that you are allowing your business to run you instead of your being the master, or you have given this subject no thought; or we would have you with us to-day. I have met many of the officers of the different State associations. I have yet to meet the officer who hasn't impressed me as a big hearted, unselfish man, who thought enough of his profession and fellow merchants to make great personal sacrifices for what seemed to him to be their welfare. Remember that but one officer of any of the different associations gets a dollar for his services, and this, the secretary, but a mere stipend.

ANNUAL DUES SHOULD BE LARGER.

I want to state here, as a preliminary to what may follow, that the annual dues of each State association should be $25 per year at least. There is not a Hardwareman in Iowa with a clear working capital of $1500 who could not afford to pay $25 per year, and $50 if need be, for the privilege of joining our retail association. I will make the statement stronger by saying that not one of us but ought to be willing to pay this amount every year for the welfare of our fellow retail dealers if we knew to a certainty that not a dollar of it would come back to us an an individual. We are open hearted in our families, we are generous with our neighbors, we help maintain our public institutions, we gladly contribute to the support of our churches. Is there any reason why, when we are confronted with a proposition to contribute to an institution that is organized purely and solely for the purpose of removing the thousand and one evils to which our life calling is subjected—is there any reason, I say, for us to hold back and say, "Will I get my money back with interest?" Do you know that in the National Jobbers' Association each and every member contributes a $25 fee and $75 annual dues to maintain their organization, giving them $15,000 annual income?

INTERSTATE SECRETARY.

We have ten annoyances to complain of and correct where they have one. We should have at our command, every day of the year, the entire time of a conscientious, capable man, who has judgment and discretion. We could not hope to get such for less than $1500 per year. We should be equipped with $600 for printing and office expense, and should have at least $500 more for traveling expenses, in order to half way do our work for us. We could use $1500 for this latter purpose and not waste a dollar. This is to equip ourselves with an interstate secretary, who can alone do more for our welfare than any ten separate State secretaries can possibly accomplish. This is as little as we can do efficient work with.

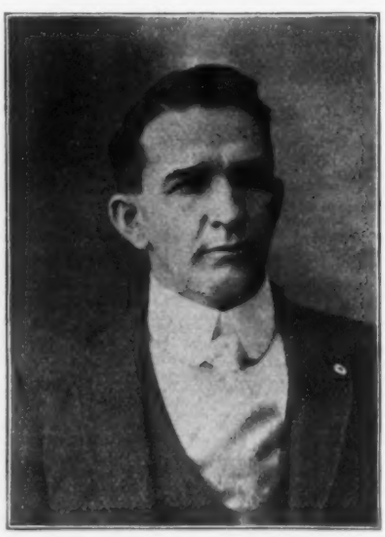
$10,000 FOR THE HARDWAREMAN'S BENEFIT.

In our executive session I will give you facts which I am sure will convince you that this is not an idle statement. What we really need is as follows, independent of the State expenses: As above, we should equip ourselves with a national secretary, who should have at his command from $2500 up to $10,000 per year. Every dollar of the latter sum should be carefully and well spent for the welfare of our members without squandering a single penny, and until we can command at least half this latter amount we are not going to accomplish as much as we need done. Let me specify how $10,000 could be wisely invested for our welfare. First, we should have a man as secretary, whose authority would command him a $2500 salary in any calling he might choose. This would give us a man of the highest ability and integrity.

We should be big hearted enough to send quarterly circulars and reports to every Hardwareman in the United States, whether a member or not. These reports would net 3 cents each, and cost our association, for four issues, to the 25,000 dealers in the United States, $3000.

We should send monthly bulletins to each of 3000 members of State associations, another $1000. Our secretary's office, to do this, would require at least three assistants and stenographers at $50 per month—$1800.

This would only leave $1700 for traveling expenses,



C. W. BRELSFORD, Secretary.

for the secretary to visit jobbers in States where they are carrying on unfair practices, and visit manufacturers whose lines are being marketed in a manner to cut our throats.

On top of the $10,000 we could easily use another $1000 for special detectives to unearth abuses, and get facts for our secretary to use in our efforts to bring jobbers and manufacturers to time.

IMPROPER USE OF THE BOYCOTT.

I want to call attention to an abuse that may bring on me some sharp criticism. I make it, nevertheless, be-

cause I know I am right, and because I want this fact to be discussed, and its truth crystallized in the method of procedure of every State association in the country. It is the indiscreet and wrongful use of the boycott. Both manufacturers and jobbers can be made to feel our displeasure without damning them, or boycotting them in an offensive manner. We are organized with the idea of standing by our friends, and by so doing punishing our former friends who are now offending us. We must use our club of withdrawn patronage so positively, and yet so courteously, that our old time friends will yearn for the re-establishment of former pleasant

H. A. COLE, Ex-President.

relations, without being able to say that they have been treated unjustly, or have been abused, and without our having been discourteous or offensive, or having aroused the passionate retaliation of the parties we are punishing. Don't boycott the man you don't want to patronize. I even say, don't quit buying goods of him entirely. He may control specialties you need. His traveling salesman is your friend, and can give you valuable information on every question asked; but if it has been your custom to give this house an annual trade of $3000, and you find their methods are a menace to our welfare, simply cut your purchases down to about $300, instead of $3000.

REMEMBER ABOVE ALL

that their representative is still the same old friend. Treat him kindly. Look over his catalogue every time he comes. Get all the pointers you can, but see to it that, instead of a liberal bill, you confine yourself to a few of his specialties, and that your purchases are but very meager. Let the salesman know that you regard him as kindly as ever. Don't transform the business transgression into a personal animosity, either against the salesman or the proprietor. Remember the old adage, "One man can lead the horse to water, but ten men can't make him drink." The above plan, instead of clubbing the horse, to make him drink, simply opens the bung hole, lets the water all out, and treats him nicely, until he gets good and thirsty and whinnies for his water.

NATIONAL HARDWARE ASSOCIATION.

The jobbers' association has set us the proper example of diplomacy. Mr. Supplee, when president, and Mr. Fernley, just lately, have told me that in all their dealing with offending manufacturers and members they have never yet even made a threat. Remember that all parties concerned understand that the underlying idea of our organization is self protection. The boycott need never be mentioned. It is always taken for granted.

Another fact I want to emphasize is that the National Jobbers' Association, as such, have a keen appreciation of the evils that threaten us, and stand ready to-day to throw the whole power of their organization to assist any reasonable plan we may propose to correct the evils that confront us, either from within our ranks or without. Remember there are six prominent jobbers in the United States whose transgressions must not be charged up against the National Assocation or its members. The 150 members of this association stand ready to correct the real abuses they are guilty of when we show them they are in the wrong. We must not only prepare ourselves to do this, but must give them reasonable time to correct the abuses after they are recognized.

HONORARY MEMBERSHIP IN INTERSTATE ASSOCIATION.

The most important phase of our association work, as above, is to perfect out Interstate Association and equip it with necessary funds. One of our jobbers has, I think, given us a happy suggestion toward acomplishing the latter result—namely, inaugurate an honorary membership, in addition to regular membership. Let any dealer, paying from $10 to $25 per year in addition to regular dues, be an honorary member. All honorary dues to go to the interstate work. I will head this list with $25. I want Iowa to set an example of generosity and clear sighted wisdom to the other State associations by authorizing your Executive Committee to turn over, in addition to the required $1 per member, as near $2 per member as possible for interstate work. Those of us who have been in touch with the interstate work see the possibilities and the imperative necessity of this action. The only reason you have not each one already received two important bulletins from the interstate office was the lack of money to do it with. In every address I have had the honor to make to you since our organization I have urged the importance of the national organization, and I stand before you to-day, after having seen our hopes partially realized, urging you more earnestly than before to carry this organization to perfection. If this is done, I will promise you great help and improvement in our conditions.

Another most important phase of our work is county and town organization. This I hope to see very thoroughly carried out in the coming year. Further facts will be given you in our executive sessions.

Catalogue House Competition.

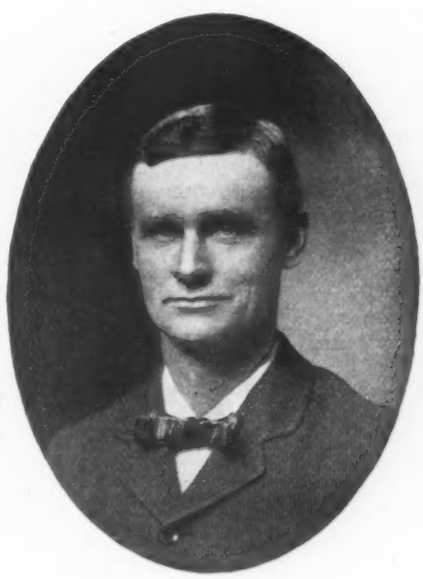
The convention went into executive session to consider the best methods of meeting the competition of catalogue houses. President Cole reported what was being done by the Interstate Association in this direction and strongly commended that organization.

Congressman Babcock's Bill.

On motion of George Staehle of Earlville the following resolution was unanimously adopted and a copy ordered to be sent to every Iowa Congressman and to Congressman Babcock of Wisconsin:

Whereas, Representative Babcock of Wisconsin has introduced a bill in Congress to repeal the tariff on Wire Goods, Nails, &c., and put the same on the free list, and believing that the people of Iowa would derive great benefit from such legislation,

Resolved, In this Hardware dealers' convention of



S. R. MILES, Ex-Vice-President.

Iowa, assembled at Dubuque, that we heartily indorse the action of Representative Babcock and urgently request our representatives in Congress from Iowa to support the bill and help to secure its passage in Congress.

WEDNESDAY EVENING SESSION.

Catalogue House Competition Again.

E. P. Messer of Sheldon read a paper on catalogue house competition, in which he gave his experience in combating their efforts to sell goods in his vicinity. He administered some pretty hard knocks to proprietors of local newspapers who inserted flaming advertisements of catalogue houses to the detriment of the retail merchants, who are the main support of such newspapers.

Several members gave their experience with editors of local papers carrying catalogue house advertisements. Some had succeeded in convincing the editors that they were injuring their local business interests by assisting the catalogue houses to reach the customers of such interests and thus take trade away from their towns. Best results has been accomplished in this direction when all local tradesmen had united and laid their grievance before the editor.

The discussion of questions was then taken up.

Question Box.

Does a standing advertisement pay?

This brought out a number of personal experiences, all being in favor of frequent changes in advertising as well as the adoption of new methods of advertising.

Vice-President S. R. Miles of Mason City stated that he had arranged with three houses in other lines in his city to make a house to house canvass of the county and advertise their business. Each house took four townships, and in every case a member of a firm made the canvass. It was found that a township could be covered in two days at an expense of $2 per day for livery hire. Farmers would in no case accept pay for meals or lodging. At the end of the canvass every one of the four firms had the name and address of every farmer in the county for circularizing. Besides this, for a long time thereafter the effects of the canvass were seen in increased trade and in new faces constantly appearing in the store. The arrangement is to continue for three more years, a canvass to be made each year.

Treasurer W. A. McIntire of Ottumwa described his method of circularizing the county by means of mimeographed circulars each addressed like a letter and the party receiving it usually takes it as a personal letter and it proves very effective in drawing trade.

Secretary Brelsford stated that in the same line the best thing that had ever been done by his firm was when a clerk sent out a large number of envelopes, forgetting to put in the circulars. Nearly every one addressed came to the store to find out what the firm had desired to say to him.

Has any one used trading stamps?

Several members gave their experience, the gist of which was that this method of increasing trade was very satisfactory as long as only one dealer in a town was using it. As soon as others did the same thing its value was destroyed.

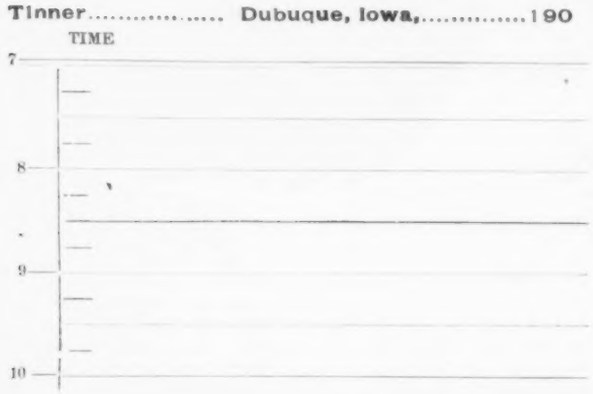
How can we make a tin shop profitable?

J. F. Ris of Dubuque exhibited a time card, as shown herewith, reduced. One of these is given to each man every morning. On it he enters the job on which he works, giving the time when he begins and when he gets through. Every night these cards are turned in to the office and the proper entries are made from them. Thus the cost of every piece is known. His firm do a great deal of job work, but also make Oil Cans, Wash Boilers, Air Tights, Gasoline Ovens, &c., keeping four men busy. They get a better price for their Wash Boilers than for factory Boilers, a good man making a Boiler in an hour, to whom wages of 25 cents per hour is paid.

TIME CARD. TIN SHOP.

J. F. Ris & Bro.

Tinner..... Dubuque, Iowa,.....190



President Cole and Vice-President Miles also explained the methods used in their tin shops, using duplicate or triplicate slips, one of which goes to the workman and the others are for the office or for the customer when properly filled out.

How do you keep track of inquiries or prospective customers for Stoves or other goods?

Mr. Chapin said that his clerks carry memorandum books, and when waiting on customers inquire of each man what he expects to need in the near future in the line of seasonable goods or what improvements in buildings he expects to make. A memorandum is made when such information is obtained. These books are run over every night and the business thus in prospect is carefully looked after.

President Cole keeps a record of such matters on the card system, having a cabinet in which cases of such cards are kept. These cards are constantly under scrutiny for prospective business.

How do you order stove repairs and prevent accumulations?

Vice-President Miles keeps a special Stove Repair book. Every order for Stove Repairs is entered in this book in full detail. These orders are sent to a Stove Repair manufacturer two or three times a week, a full list being sent, giving the name of each person and the Repairs he called for. Accompanying the orders are tags properly filled up to be attached by the Repair manufacturer to each order. This is done by the manufacturer, who then ties all of the orders together in one package. When this arrives and is cut open any clerk can hand the Repairs to the proper party. Not a mistake has been made in two years, and therefore no stock of Repairs has accumulated. When Repairs are ordered by express he charges the cost of such expressage, but does not charge extra when they are received by freight.

How do you clean out hard stock after inventory?

The sentiment of the discussion was to consider any slow seller hard stock. Inventory time should not be awaited, but the stock should be kept under the eye of the clerks. It should be pushed out at some price, cost if possible, but if not, below it. Some interesting experiences were given in getting rid of stock.

How do you figure out a profit on a bill of Hardware for a contract?

The discussion of this question was diverted to the method of selling Stoves when Stove Furniture is bought with them. Some of the dealers make out a list of Furniture and include that with the Stove at a certain price, but the usual custom proved to be to sell the Stove first and permit the customer to select his own Furniture, with the understanding that he will be allowed a discount on the gross amount. This discount varies with the customer.

Is it better to figure cost on each item of Builders' Hardware, or on the whole transaction in a lump?

This did not bring out much discussion. Some of the members were inclined to be facetious, stating that they figured the cost on the whole transaction and were glad if they got any profit on it.

Is single or double entry the best method for keeping books for retail dealers, and what is the best ledger?

Quite a number of simple methods of keeping books were described. One dealer uses a day book and transfers all items bodily to his ledger, using the ledger for making out bills.

Another uses what he calls a counter book, in which each clerk makes an immediate entry of a sale. A transfer from this book to the journal is made every night and then to the ledger.

Cash registers were highly commended as adjuncts to correct bookkeeping.

THURSDAY MORNING'S SESSION.

Practically the entire session was devoted to the reading of papers, all of which were of great interest.

H. E. Tredway of the A. Tredway & Sons Hardware Company, Dubuque, read the following paper on

The Mutual Relation of Retailer and Jobber.

I am not certain but that my version of your committee's idea is given better expression by making my subject read "The Mutual Dependence of Retailer and Jobber." It is certainly easy to see that the jobber would soon look like "thirty cents" if the retailer withdrew his support; and I want to try and prove that the retailer would look likewise in time. I might concede him quite an extension in the time, but expire he must, if not drawing strength from the jobber's extended stock and thoroughly developed system of buying and selling behind him.

THE JOBBER'S ADVANTAGES.

Of course, I am going to talk on this subject as if it was applicable only to our mutual business, the Hardware trade, and my arguments will be based on conditions in that trade which I know obtain; but they are applicable, I believe, to most other lines as well—some possibly less pronouncedly, but in many of them even more forcibly, because some one of the jobber's strong points exerts a greater influence in that particular line of business. That is, in these other lines, instant delivery may be of greatest importance; that is one of the ideal jobber's strong points. Maybe in another line great variety may be paramount; that is the jobber's strong point. In some lines which take first-class or double first-class freight classifications a short haul by local freight is absolutely necessary to lowest delivered cost, and the jobber is so situated that he offers his customer a short haul. In perishable articles proximity is the surest prevention of loss *en route*, and the nearby jobber offers this. In so-called heavy commodities carload freight rates into the jobbing point and local freight rates out give the jobber so much of an advantage in his immediate local territory that not even the competitor in the next State or county can compete with him, let alone any remote mill or manufacturer; that is the jobber's strong point.

These are a few of the advantages which the existence of the jobber affords to the retail dealer, but as my paper is not a plea for the jobber but a study of the benefits accruing to each one of these factors through the existence of the other, let us then consider the reasons for the existence of these two factors.

1. Of course, the great and only reason why we all exist and work as business men is for the money there is in it. We are not after glory, but need the hard cash.

2. The retailer exists because every community demands a base of supply in its midst, and for that convenience are willing to pay a living profit on their purchases (if they cannot buy better outside). So, if you simmer it all down, there is just this one reason for the retailer's existence, but that one reason is all-powerful.

A PLEA FOR THE JOBBER.

On the contrary, the jobber has three causes for his existence, none of them so great as the one for the retailer, but each of much moment in commercial economy.

1. The retailer seems willing to allow the jobber a living for the convenience of buying many of his goods at one time and in one place.

2. The average manufacturer is willing to concede the jobber a lower price for quantity purchases.

3. The railroads are willing to make the jobber lower rates on large quantities of freight in one shipment than they can or do make on small quantities in many shipments.

Primarily, as I before stated, in my business, either that of a retailer or jobber, there is but one vital point, net profit. If that is obtainable all else is secondary; but to the really successful business man there is the further consideration of increasing that net profit to a point where it affords more than a mere interest on the capital he invests and wages for the labor he puts in. Therefore, the wide awake dealer, and jobber as well, searches for the best methods of handling his business affairs, that the most favorable results may be recorded at the end of the year's business.

Now, this question of the mutual relation of retailer and jobber is influenced vitally by the consideration above stated, because, unless it is to the actual cheapening of the retailer's expense of doing business to have the jobber to assist him, there can be no plausible excuse for the existence of the jobber, and he becomes a useless encumberer of the earth.

But I believe there are many ways of showing the fact that in practically all lines of merchandise, and particularly Hardware, the cost to the retailer, and consequently to the consumer, of any article is lessened through the offices of the jobber.

METHODS OF DISTRIBUTING GOODS.

As a general proposition, in the distribution of manufactured articles there are five methods or routes, each of which is more or less employed.

The first method is the primitive way from manufacturer to consumer without the interposition of any intermediate agent. In most commodities the least economical, because no manufacturer who produces on a large scale can find customers enough near him to buy his product.

The second method is from manufacturer through some transportation company to the consumer, and is possible in only a few lines, and in those probably not economical, because of the limited quantitites a single consumer can buy, and the relatively high toll of the transportation company.

The third method involves the maker, transportation company, retailers and a consumer, and it is a method which I will dwell on later in my paper. I will only express my belief that this method is economical only where the manufacturer's line is large enough and weighty enough to make economical shipments, and where the line, too, is profitable enough to stand the exeraordinary expense of specialty salesmen, for on strictly competitive staple goods it is a well proven fact that the ordinary retail dealers cannot under normal market conditions buy and ship sufficiently large quantities to satisfy both the manufacturer as to price and the transportation company as to the rate of freight.

The fourth method is the one which both the retailer and the jobber have to fear and to fight, and one which, owing to the extraordinary developments of the postal service and rapid transportation, has become a factor not only to be considered, but to be contested. This route is from manufacturer through a common carrier to a common enemy, the catalogue house, and from them through another common carrier to the consumer. The manufacturer here finds a customer who can buy ample quantities to make selling him economical. The first transportation company has all the weight necessary to lowest rates. The catalogue house has no expense for traveling men. There are only a few points at which this system is weak or vulnerable.

HANDICAPS OF THE CATALOGUE HOUSE.

1. The merchandise cannot be in the consumer's hands at once.

2. The enormous percentage which the transportation cost between the catalogue house and the consumer will ordinarily bear to the value of the material purchased.

3. The tremendous advertising and catalogue expense.

4. House expenses of handling must be three to five times as great as a straight out jobber encounters.

5. The undue percentage which postage and remittance charges bear to the amount of the purchase.

Against the catalogue house should be arrayed, then:

1. The established and reputable manufacturer, because if he sells them, no matter at what price, the regular retail figure must be cut and not only cut, but published broadcast, and the market for that manufacturer's goods injured by the reaction.

2. The retailer is against him, because his business is undermined and injured.

3. The jobber is against him, because if the retailer could possibly be superseded by the establishment of catalogue houses in all the larger cities and towns and all consumers be thus satisfactorily and speedily supplied from such stores, we jobbers (Hardware jobbers, anyhow) might just as well quit and find some other vocation now as any other time.

But in my humble opinion the public cannot be economically and speedily served through this fourth method of distribution any more than they can through the preceding three, and it takes the fifth method to really accomplish to the fullest extent the combining in one method the vital points of economy and convenience.

THE FIFTH METHOD OF DISTRIBUTION

involves more people in the work, but as in a modern factory, each one does what he has learned the "knack" of doing, and he does it better and more economically on the old principle of practice makes perfect. The exclusive manufacturer makes the greatest quantity of

that particular article in which by specialization he has learned the secret of lowest cost. The railroads carry it in quantities limited only by the capacity of their cars, and at the lowest prevailing rate of freight, to the jobber, who stands ready at any moment to deliver to the transportation company such quantities of many such articles as the retailer may instruct, and forward them for the comparatively short local distances which intervene. The retailer has the goods subject to the wants of the consumer.

There never has been, I believe, until recently any question of the need of the public for the ordinary retailer, because everybody conceded that the wants of the people were best served by him. There has arisen, however, that new factor in the distribution of merchandise, the result of the printer's art and of quickened mail and transportation facilities, which, though it can scarcely be said to threaten the life of the retailer proper, has grown to the proportions of a universally recognized competitor, and brings into consideration an entirely new element as to the most economical method of the distribution of goods from the manufacturer to the consumer. And with the advent of the catalogue house some question may have arisen as to the necessity for the old line retail dealer.

AGAINST THE JOBBER'S RIGHT TO EXIST.

however, there have often been voiced insinuations, both by the manufacturer and the retailer; and to consider broadly the mutual relation, nay, vital dependence, of these two great factors of trade, the retailer and the jobber, upon each other it seems best to trace the development of the jobber and possibly thereby to prove his usefulness.

The first dealers in any new community are the general stores, whose stock must, of course, be so widely assorted as to cover not only the food requirements of the new settlement, but must furnish apparel to protect their bodies and material to erect their homes. Such dealers must draw their merchandise from a number of jobbers, and to them the jobber is an absolutely vital factor for existence; without him their stock could never cover the diversified yet limited wants of a sparsely settled community. Think of what an impossible task it would be to attempt to buy even the Hardware for such a store from the manufacturers direct, and how unprofitable such an attempt would be.

AS A COMMUNITY GROWS

and its wants become greater and more diversified, it outreaches the capacity of the general store man, because he cannot meet all the wants, nor keep his stock up to their expectations, and retailers of special lines start in and offer better assortments of such goods. Why does this happen? Because Mr. General Storeman in himself or in his clerks has not and cannot have the capacity to so completely cover all the lines wanted by his community as to preclude the necessity for other stores carrying more complete independent lines, and what draws the competitor in, generally, is the knowledge that a well stocked single line store will draw practically all the trade on that line away from a dealer who can give it at best only a part of his attention.

GETTING SUPPLIES.

Now, from whom does this special line dealer draw his supplies? Let us suppose he is a Hardwareman. Can he economically go to the manufacturers and buy the more complete assortment of Hardware, which he must have in order to offer his little community any advantage over what they have already enjoyed? Suppose he should, he could obtain from one manufacturer, say, ten items of the thousand or two he needs, and he would have to see more manufacturers before he could possibly complete his lines, and with long distance freight charges to pay at local rates, the economy of his purchases, regardless almost of the prices he might obtain, would be more than doubtful, and the inconvenience and delay of it so great that apparent profits would wane before his stock was in hand.

We are supposing this dealer to be a Hardwareman, and we are all more interested in Hardware than anything else, and so the other day when I was thinking this talk over, and just to clinch my conclusions that an ordinary retail Hardware stock could not within any reasonably comparative cost be bought exclusively or even in the main from the manufacturer direct, I ran casually through the index of our catalogue and found that buying from the same manufacturers we buy of and bunching his purchases with those who make the largest lines, he would have to open accounts with about 500 concerns. Thus he must have 1000 shipments made him in a year, giving only two opportunities a year to replenish his assortment of each line.

Now in any ordinary retail Hardware business of, say, $8000 (of course, you all do twice that, but I am speaking of the common, ordinary Hardware dealer), split up into 1000 shipments, you have a cost value of about $6 a shipment, and if he buys from the same shipping points we do his average freight charges on such shipments would be a prohibitive percentage of the cost value.

A LACK OF ECONOMY,

therefore, in the general purchasing of goods from the manufacturer by the retailer being shown, and a necessity therefore proven for the existence of the jobber, for the convenience and profit of the retail dealer, a second question is brought up: Should any goods be bought of manufacturers? Can they be purchased to the retailer's ultimate profit, I say they cannot, and can bring forward some strong arguments to prove it. I admit first that sometimes you can and do buy certain articles a little cheaper by buying direct; I admit that you may occasionally in this way underbuy and thereafter, unfortunately, undersell your competitor; but as this reduces his price and profit, and as the shoe is as likely to be on the other foot, it simply reduces the percentage of profit for both you and your neighbor in the long run.

Generally, however, you pay just about as much for these articles as if bought from the jobber, but in your judgment (and we jobbers always concede the judgment of the retailers good) the goods are a little more desirable for your trade either because they are intrinsically better articles or because you have the exclusive sale of them; but, on the whole, you will generally admit that when the excess freight is paid the advantage even in apparent cost or value is not great, and the influential point to you is the exclusiveness of the goods. An excellent point, too, and one which no dealer or jobber can dispute.

ANOTHER CONSIDERATION.

But let us look at this matter in another light. You have, let us say, practically hired these jobbers to obtain your supplies for you and to keep them on tap at points which will best serve you. You are paying them practically on a percentage basis for their buying, and the more buying they do for you collectively the lower this percentage basis can be and is made. You need not fully believe this, but reflect that the jobber's expenses are theoretically stationary while his sales fluctuate. For instance, the traveling expenses of a certain number of traveling men will be about so much each year; warehouse and office expenses are represented each year by a practically fixed amount, so that the variations come in largely on salaries to travelers and on gross sales. Salaries to salesmen are, it is true, based on what they do, but this is practically the only item which increases proportionately with gross sales, and as an increase in gross sales is the only way which the jobber can discover which will enable him to decrease the gross profit percentage which he must charge you for the work he assumes, the fact becomes apparent that the retailer's interests would be best served by restricting his purchases practically to the jobber, if he concedes in the first place that he must support and stand by the jobber.

In connection with the question of buying certain goods from the manufacturer there is another argument to be presented. Conceded that the jobber does his business on a percentage basis, if you gave him this business to do he would do that on a percentage basis also. The jobber's salesmen have many times more goods to sell than the manufacturer's salesmen have, so the percentage of the salesmen's expenses in case the jobber sells the goods is reduced to a minimum by division of the expense with sales of other lines, while in the manufacturer's case it is increased to the maximum because of the limited sale. As a consequence you will find that almost without exception a manufacturer who canvasses and sells the dealer direct must keep his selling price well above mere cost to cover the cost of selling, while the jobber could, if permitted, sell the same goods at little, if any, increase in his fixed expenses. True, it might increase his net profits for the time being, but as experience has amply proven that there is competition enough among the jobbers to promptly eliminate any undue net profit, that consideration is not weighty.

THE JOBBER A NECESSITY.

The foregoing argument simply goes to show to the retailer, who admits the jobber a necessity, that he (the retailer) should realize that the more manufacturers' salesmen he buys of the greater the sum of the traveling expenses he is loading upon himself and the retailers of the country; and if the manufacturer is given to understand that his goods offered through the regular channels of the jobbing trade would be more acceptable than if ordered direct, it would not take long to cut off the expense of the manufacturer's salesmen; nor will it take long for that manufacturer to discover that where it costs 2½ to 5 per cent. to sell his goods to the jobbing trade it has cost him 25 to 30 per cent. to sell to the re-

tailer, and that he has cut off one large item of expense in doing business, and he can when marketing through the jobber materially reduce his price and still retain a manufacturer's margin.

But to draw our final conclusions, the retail dealer who looks upon the jobber as his broker, who simply sees the necessary manufacturers, and by combining the business of many retailers is enabled to accomplish economies in many directions—the retailer who recognizes these facts easily sees the mutual relation of his interest to the jobber's.

Then the jobber who looks upon the prosperity of the retail dealer as his prosperity, and treats the enemy of the retailer as his enemy, is simply protecting the ground upon which he stands and without which he must fall.

A. T. Nelson of Wilton Junction furnished the following paper on

Retail Business vs. Banking.

In writing to you on this subject I do not wish to confine myself to any one particular line or branch of the business, neither to any one class of trade or locality. My subject allows me a wide range, therefore I will attempt to talk to you in a general way from the standpoint of a business man and a brother in the retail Hardware trade.

Gentlemen, we are all bankers, or, in other words, dealers in merchandise which represents dollars. The dollar is the motive power behind all business schemes. We, as bankers in merchandise, have our losses, our competition and our

DEAD STOCK,

the latter of which will compare well with the banker's bad paper, and if not disposed of in time may become a total loss. Why do we have this dead stock? Firstly, I think, because we sometimes overbuy, and again by changes of fashion, improved wares, &c. How much easier it is to sell the new article than the out of date and shelf worn. Place the damaged, the out of style, the slow seller for any cause in handy reach; push it out. If you can't get cost, get less.

Again, do you always take the position of a banker when making

A CREDIT SALE?

A loan of money—just so many dollars tied up in a Stove with your interest, cost of doing business and collecting, all tied up in your profit. An illustration: You pay $20 for a Stove; you want 25 per cent. gross profit, or $5. Say it costs you 5 per cent to do business, leaving you a net profit of 10 per cent. As a Hardware banker, how long can you have this account standing out?

If doing a little business of $10,000 a year and you want, say, $1000 per year as your salary,

YOU MUST HAVE 10 PER CENT.

on your sales. Therefore you cannot afford to wait ten minutes on the sale I have described. Suppose you get 30 per cent. gross profit, you then have 5 per cent. upon which to carry your customer one year; but your $20 would have earned you this 5 per cent. loaned, without polishing, lifting or carting, guaranteing, quarreling or repairing. Now, let us invest $20 in two ways and suppose that we are going to turn our stock over three times during the year. First cash sale, $20 invested, $25 sale; second sale, $25 invested, $31.25 sale; third sale, $31.25 invested, $39 sale; and at the end of the year your money in the bank, with an increase of $19—very nearly 100 per cent. Now the other investment: Twenty dollars invested, $25 sale on one year's time; a statement, a kick that the goods do not look as well as when sold and only $5 gross earnings on the investment for one year. This is just one of the secrets by which the catalogue house and cash store are able to make it hard for you to hold your job.

Please bear this in mind, gentlemen, and you will better understand the remarks I am about to make. I do not claim that this time trade can be successfully done away with in a day, but I do claim that the Hardware banker and all other retail bankers in merchandise should use their influence to the fullest extent in reducing this unbusinesslike practice of buying trade with long time inducements.

THE MAIL ORDER STORE.

Now I may touch a vital spot in the heart of some of our members, but, pardon me, I do not reflect on any one. Just a gentle slap at you all. Montgomery Ward & Co.! Bugbear! White Elephant! I am not in harmony with lines upon which so many of the associations are operating. They are spending too much time whining about the woes and ills that have beset them from department stores, and not enough time upon the ways of successfully combating these interests. I am afraid to get rid of these houses entirely, lest we become a trust ourselves.

In the first place, who are Montgomery Ward & Co., Sears, Roebuck & Co.? Perfect gentlemen, business men and financiers, so far as I am able to learn, out in the world for trade. There is nothing dishonest about it, nor underhanded in it. We don't own any trade, and the worst drawback to the business house that carries a large stock, employs help, pays taxes and all this, is the little store box merchant who does his own draying in a wheelbarrow, lives above his store, slides down the banister at every click of the latch and knocks off a plum every now and then while you and your clerks are throwing stones at Montgomery Ward & Co.

THE CROSS ROAD MERCHANT.

The cross road merchant that gets the number of a Stove you have sold and sells a neighbor one like it, using your sale to show up the goods, then asks $1 over cost, the customer taking the Stove from the station as shipped, without blackening—these are the fellows that bite. Nothing dishonest about it. How often the case, when besieged with dogs, while you are battling with the mastiff, the little cur slips in and carries off a branch of your trousers!

RETAILERS ADVERTISE THEM.

It would be just as reasonable for Montgomery Ward & Co. to appeal to Congress to prohibit us local Hardware dealers from nipping at their trade as for us to try

A. T. NELSON.

to force them off of the market by law. At the same time we are paying for their advertising by sifting their names broadcast among the country buyers, who will naturally think that we are being pinched and the department store is really a good place to buy, after all. Now the remedy: This is something that no one man can name for all localities, where conditions differ, competition differs and individual dispositions differ.

But I would suggest that every retail Hardware dealer make a banker of himself.

TEACH FRIENDS AND CUSTOMERS,

as well as the customer of the department store, some lessons in finance. Teach them this prayer: "Oh, Mr. Hardwareman! I know that the secret of individual wealth lies in getting more than I spend; that my trade in your hands adds to your wealth; that with more wealth you are able to carry a better stock for me to select from, that you can furnish better help to wait upon me, buy more of my beef, drive a good team of my raising, and sell me goods cheaper than if I send my money to build up granite buildings in far off cities, where trusts and monopolies are reared."

After he has this well learned, then take up the following

FOR YOUR OWN GUIDANCE:

"Oh, Mr. Self! I begin to believe that the Hardwareman is his own worst enemy; that the farmer is all right in saving all the money he can; that a wealthy community means a healthy trade; that to make a wealthy community all merchants must themselves buy their family supplies at home; that a wealthy town must attract more money than it sends out; that (all things being equal) I will buy in my own State; that which my State don't make or supply, some other State in my Union does. And I will handle goods made in the U. S. A. in

preference to any others on earth." The principles I have set forth I believe will win. The details will have to be worked out by the parties interested.

Bear in mind: You can't do a healthy business in a town of paupers; that your personal interests are your first duty; that the joint interests of the town and community in which you do business form a part of your own and can best be served by unity of efforts and buying at home.

G. L. Miles of Grinnell contributed the following paper on

Side Lines.

The twentieth century brings us face to face with new business conditions. There has been a revolution in business methods in the past decade. Mighty commercial institutions have grown up in our large cities in a comparatively short time, and are struggling with all the force of immense capital, modern up to date business methods and sharp, shrewd management to monopolize the entire trade of the country.

Many of the old and well-known manufacturers seem to be supplying them with ammunition in the shape of low prices to enable them to bag the whole game. The jobbers, whom we look upon as friends and allies, seem in some cases to view the battle with indifference. They do not seem to realize that our fight should be their fight, that the business we are losing by reason of low prices to big retailers is business lost to them.

THE MAIL ORDER BUSINESS.

If our jobbing friends could see the enormous quantity of freight that comes to our country depots consigned to individuals, and if they would invest 15 cents apiece for three or four of the large catalogues published and sent broadcast by as many large retail houses, and if they would study these volumes as the common retail merchant is forced to study them, the jobber's eyes would be opened and the retail merchant would have the much needed co-operation of all the jobbers in his fight for fair play and no favors.

PROGRESSIVENESS.

The Hardware dealer who expects to succeed by nineteenth century methods and management will be doomed to disappointment. The race is too swift for him. As the stage coach and tallow candle have been driven out of business by the lightning express and electric light, so will the old style shop keeper be succeeded by the prompt, progressive, tireless merchant of to-day.

The secret of success is growth. The modern Hardware dealer must continually improve his methods, carry a greater variety of goods, buy in small quantities, if necessary, keep a "want book" and study that book, and study the wants of his trade. He should subscribe for and

READ THE TRADE JOURNALS,

They deserve his patronage, and he needs the information they bring him. He should save and properly classify all the catalogues that come to him, and thus be thoroughly posted on what is going on in the Hardware world. He should read at least one agricultural paper and the much quoted 15-cent catalogue and thus know what the other fellow is doing.

PROFITABLE SALES.

Any one can set up a store and fill it with things that are called for, but hundreds of other merchants are doing the same thing; the question is, "what will sell over our counters at a profit?" After passing through a period of small profits on staple goods, we are now fully entered upon a period of no profit on a large line of Tools, Hardware and House Furnishing Goods, that the retailer has helped to make popular.

PREMIUMS.

For years the manufacturers of cheap baking powder gave a cheap granite dish as a premium with each package, and now the great tobacco and coffee trusts and soap manufacturers are buying trade by a system of premiums in the shape of Knives, Razors, Rifles, Shot Guns and other staple goods from the Hardware dealer's stock. It is now possible, by the aid of these premium schemes, for a retail grocer to get the very latest model of a Repeating Shot Gun for $10, while the Hardware dealer is compelled to pay 75 per cent. more for the same thing. Scores of other goods are butchered the same way.

UNPROFITABLE LINES.

We are unable to meet competition and make any profit on certain Repeating Shot Guns, Hand Saws, Hammers, Axes, Meat Cutters, Carpet Sweepers and many other goods which the manufacturers see fit to furnish certain favored houses at a good, fat profit below the price we are compelled to pay for these goods. I am resolved that so long as this condition exists these goods shall find no place on my shelves. If the members of this and similar organizations will make the same resolve and stick to it, we will soon see the end of the struggle we have entered upon.

Already we can see a glimmer of light. Only a few days ago a traveling salesman, on being informed that I did not handle a certain brand of axes, remarked: "I find a great many dealers who do not. They will not handle these axes so long as Blankety, Blank & Co. of Chicago sell them," and now this manufacturer is sending out circulars announcing that hereafter his product will be marketed through the regular Hardware trade. But if we drop the sale of these old-time favorites, we must look for specialties and side lines to take their places and swell our sales. The money in the Hardware business is in the specialties rather than the staples. No retail Hardware dealer ever grew rich on his profit on Nails and Barbed Wire.

SIDE LINES.

There is scarcely a limit to the goods that can be handled to advantage in a Hardware store. The sale of these goods will bring us new customers and add prestige to our business. Read the advertisements in the trade journals, the popular monthlies, the ladies' journals, the agricultural papers, and the descriptions of goods in the fifteen-cent catalogue, and you find suggestions galore of goods suitable for side lines to the Hardware trade. These advertisements are models

G. L. MILES.

in the line of publicity and are read by millions of people who are induced to buy the goods described.

The hustling Hardware dealer should be posted on these goods, and be able to

SUPPLY THE DEMAND.

He should inform his customers that he can supply them with anything and everything in his line, no matter where made, at the advertised price plus freight. He should make it a practice to order goods, no matter how small and trifling the amount, for his customers, and not allow them to contract the mail order disease, which quickly becomes chronic and difficult to overcome.

ELECTRICAL SUPPLIES.

In some parts of the State rural telephones are quite the fashion, and soon most farmers will have telephones and free delivery mail boxes. The Hardware dealer should post up on these subjects and not only be able to furnish all the supplies in the way of Wire, Batteries, 'Phones, Insulators, Brackets, &c., but he should interest his farmer customers and promote new lines. The profits are small, but it requires no extra capital, as the sales are for cash, and it brings people into the store.

Electrical Door Bells and Batteries are staple goods and are regularly called for, but there is a long list of other electrical appliances that might be profitably handled, such as Burglar Alarms, Automatic Fire Alarms, Annunciators, Motors, Fans, House and Factory Telephones, Call Bells, Electric Light Wiring, &c.

It is an interesting subject, and the ingenious dealer who fits up an attractive sample board, connected with a Battery, will find profitable returns from this side line.

Where there are no gas or electric light plants there are opportunities for installing

GASOLINE GAS MACHINES.

With the modern Welsbach burner, gasoline gas affords a cheap light that is entirely satisfactory, and gas stoves are surely more desirable than gasoline stoves. I believe there is no other system of store lighting that is so cheap and satisfactory. I am told of a small town where the local dealer has installed a large number of plants at a fair profit, not only in his own town, but has worked other larger towns where the dealers were not so progressive. There are well to do farmers in most every community who would be glad to have such a lighting system if they were educated on the subject. There is nothing mysterious or complicated about the machines, and any dealer can easily post up on the subject. Gasoline lamps are quite satisfactory and are as easily sold as Gasoline Stoves. Acetylene gas machines are also quite extensively sold and seem to be quite popular in some places.

POULTRY AND BEE SUPPLIES.

Farmers and the residents of the smaller towns are being educated on the subject of incubators and brooders. The Hardware dealer should make an effort to supply the demand for these goods by displaying a few samples and creating an interest in them. He will find it profitable to carry a small stock of oyster shells, grit, bone meal, beef meal, clover meal, dried blood, insect killers, leg bands, and such other goods as the poultry raiser uses and is obliged to order from distant dealers because he cannot buy at home. Large dealers in the West claim to buy oyster shells by the carload and even trainload, so there is surely a demand for them. Some of the largely advertised stock foods and remedies are quite salable, and where there are no regular feed stores it might be profitable to handle corn, oats, ground feed and baled hay and straw. Beehives, honey sections, wax foundation, bee smokers, queen traps, berry boxes, crates and other fruit packages are bought and used by our customers, and I find it desirable to keep them in stock.

HOLIDAY BUSINESS.

For several years I have made a strong bid for holiday trade and I have succeeded in getting ten days of the liveliest kind of trade. I know of nothing that will bring such crowds of people to a store as a well displayed stock of holiday Toys and novelties. Anything will sell at this season of the year, from canary birds and gold fish to Cook Stoves and war relics. There is a good profit in holiday goods, but I would not advise the Hardware dealer to put in the endless variety of Toys and notions necessary to make up a complete stock of this kind. It requires weeks of labor to buy and arrange these goods for sale, and the extra help and fixtures, and some loss, lessen the direct profit. Yet I believe the advertising that I get out of my holiday trade is of more benefit than the direct money profit. The Hardware dealer, however, can do considerable business without buying many special holiday goods. A very creditable display can be made with Cutlery, Silver Plated Goods, Tools, fancy Nickel Plated and Brass Goods, Tin and Japanned Ware, Shot Guns, Rifles, Sleds, Skates, Carpet Sweepers, Wire Plant Stands, Fire Sets and a great variety of goods that are more or less salable throughout the year. Christmas trees, holly and ground pine will liven up the stock and make a profit as well. Cameras and Photograph Supplies, Talking Machines and Records are handled in some Hardware stores, and where the field is not already occupied it would be profitable to cater to the trade of these fascinating fads.

FOR THE FOURTH OF JULY.

All Hardware dealers carry Gunpowder, and they consider it a part of their stock, but they seem to have overlooked the fact that fireworks just as properly belong to their trade as Blank Cartridges and Blasting Powder. I find that a small stock of Fireworks brings me a satisfactory profit and has increased the popularity of my store in at least the eyes of the small boy. The dealer should enter this trade with caution and not overstock, and be sure he has a permit from his insurance company allowing him to handle these goods. Fifty or $100 worth of Fireworks, or even less, would do for a start, and before the bill comes due the dealer will no doubt get his money out of them and be able to decide if it is wiser to add to the line another season.

RUBBER STAMPS, ETC.

A little effort will bring in a great many small orders for Rubber Stamps, Badges, House Numbers, Milk Checks, Key Checks, Door and Window Screen Numbers, Door Plates, Stock Markers, Stencils, Steel Stamps, Rubber Stamps, Dates, Seals, Stable Fittings, &c. These are generally small sales, yet the "want book" in our store shows enough orders taken in one day recently to make a profit of $2.50, with no money invested. The time taken in making these sales was not over 20 minutes. Compare this item with the time consumed and profit made selling a 26-inch Saw at the price your customer can "send off" and buy it for. There are some manufacturers who believe the dealer should have a profit on Saws and make it possible for him to get it. Every dealer should be able to supply the wants of people who buy tents, awnings, stack covers and other goods in this line. A sample book of tent and awning cloth and a properly priced catalogue is all the capital required in this line.

SEEDS.

Seeds, plants, bulbs and even nursery stock can be handled by the Hardware trade. The old expensive mail order seed business should, and will, give way to the local dealer if the trade is properly worked up. New and improved varieties of grains, forage plants, vegetables and flowers can be introduced by the local dealer as well as by the distant seedman. The farmer reads in his farm paper about the wonderful growth of Essex rape, or a new clover, or a new variety of wheat, and the wide awake Hardware dealer should be prepared to step in and supply the demand as soon as it is created. I would suggest to the Hardware dealer who is not handling seeds that he invest $25 to $50 in garden seeds in bulk and grow up with the business. My trade in farm and garden seeds often exceeds my yearly sales of Wire and Nails. Timothy, clover, blue grass and lawn grass seed are staple goods, and a limited sale of lawn and garden fertilizers can be worked up.

GARDEN TOOLS.

There is considerable trade in Garden Drills, Wheeled Hoes and Plows. These goods have been popular with the market gardeners for years, and it requires but little effort to convince the farmer and the city man with a taste for gardening that these labor saving Tools are far superior to the old fashioned Hoe. For several years I have handled a much advertised and popular make of Garden Wheeled Tools. My trade has increased each year. These same Tools are handled by every catalogue house and every seedman that I know of, and yet the manufacturers are able to so regulate the sale that there is a reasonable profit to all who handle them.

ORNAMENTAL IRON GOODS.

Wherever there is a cemetery there is a demand for Iron Vases, Bouquet Holders, Wire Trellises, Lot Inclosures, &c. A few samples of these goods displayed before Decoration Day and a supply of catalogues at hand describing other goods in this line will lead to profitable sales. I occasionally have a call for Metal and Terra Cotta Dogs, Rabbits and other Lawn Ornaments, and I am able to make sales of these goods because I have catalogues where I can find them that give all the information desired.

CATALOGUE SALES.

A few months ago the secretary of one of our leading local institutions inquired about some goods that are not generally kept in stock. I had only a few days before received a catalogue on the subject, had written for prices, and was able to promptly give all the information desired. A few days later he came back and ordered goods to the amount of $100. The whole time consumed was less than half an hour; cost to me, two postage stamps, and the profit was quite satisfactory.

Catalogues are too valuable to be deposited in the waste paper basket, and cost the dealer nothing. I have a very simple system for filing circulars and small catalogues. I invested about $12 in a half gross of common pasteboard and wood lettering filing cases and labeled these "Heavy Hardware," "Paints and Oil," "Seeds and Garden Tools," "Plumbing," "Vehicles," "Sporting Goods," "Bicycles," &c. A more elaborate system would be more desirable and would no doubt pay for the time and money invested.

LIGHTNING RODS.

The much abused Lightning Rod should not be overlooked by the dealer who is ambitious to handle goods that will afford him more profit than the sale of Saws at about cost. Most people believe that a well made Lightning Rod, properly put up, will afford some protection to the building thus equipped. The sale of Lightning Rods will depend entirely on the ability of the salesman to work up sales. Few, if any, will come into a store and call for them, even though they have always considered them a good thing. It requires less ability to put up Lightning Rods than to put up eave trough and conductor. Fifty dollars will supply sufficient stock for a start in this line.

SAFES.

I am told that a member of this association buys small Fire Proof Safes by the carload and is able to dispose of them. Any well to do farmer will admit that he should have a safe receptacle for his valuable papers, and it is the Hardware dealer's privilege to supply him with a Fire Proof Chest or Safe at a fair profit. Not being a necessity, it would, of course, require strong soliciting to make sales.

PAINTS AND OILS.

The Paint and Oil business is well adapted to the Hardware trade, and more and more dealers are taking it up each year. The dealer should talk up Paint when figuring on Nails and Hardware for a building, but should not solicit the average painter's trade except on a cash basis. There is little profit in Lead and Oil, but Varnishes, Hard Oils, Varnish Stains, Enamels, Bronzes, Japans, Floor Dressing, Buggy Paint, Implement Paint, Shingle Stains, Brushes and the small packages of Mixed Paint afford a good profit. Lubricating Oils and Greases afford a good profit also.

GLASS.

The Glass department of my business is one of the most satisfactory. It affords a good profit and the breakage is light. I keep my stock in the basement in the original boxes, set on end and properly labeled. I have no fixtures except a Glass board and a supply of 10-cent Steel Glass Cutters. There is no need of an expensive diamond for cutting ordinary Window Glass. I keep a few sizes of Chipped and Ground Glass and samples of Figured and Fancy Glass, so that I can duplicate most any kind of Glass needed. There is little, if any, profit in handling Plate Glass. The dealer commencing in the Glass business should find out what sizes have been mostly used in his vicinity, and buy only such as are likely to be called for. He will discover also that several sizes of Glass will cost the same per light, and one box will enable him to cut these sizes without loss.

PORTABLE FORGES, ETC.

A good many sales of portable Forges, Anvils, Vises, Screw Plates, Repair Outfits and small Blacksmith Tools can be sold if a few samples are displayed on a table or counter. Farmers will order $20 to $50 worth of these Tools of canvassers, and the Hardware dealer can have a part of this trade if he asks for it and talks it. A collection of these goods always seems to interest the farmer. Some very good goods in this line are made in Dubuque. I carry a full line of Heavy Hardware, Bar Iron, Horseshoes and Nails, wood stock and malleables and find it fairly profitable. I am not, however, able to make many sales to blacksmiths, for, as a rule, they will buy of a traveling man rather than of a local dealer.

SEWING MACHINES.

There is no reason why Sewing Machines should not be retailed from the store, just as are Stoves, Washing Machines and Lawn Mowers. I am told that the smaller catalogue houses sell from 12 to 15 carloads of Sewing Machines a year and the large establishments sell thousands. The Hardware dealer allows this to go on without a protest, or at least without an effort to keep the business at home. Any salesman who will familiarize himself with a Machine and be able to use the different attachments, can sell Sewing Machines just as well as he can sell other Machines.

MANTELS, GRATES AND FIRE FLACES.

Mantels, Grates and Fire Places are a part of every modern house of any pretensions, and yet most builders are not able to buy their Mantels at home. Here is a much neglected side line. A popular priced sample or two on a dealer's floor, with samples of Tile and a good supply of catalogues of different manufactures, will make sales and a moderate profit.

PAPERS FOR BUILDERS.

Here are some extracts from a circular letter from a manufacturer of Roofing and Building Papers that contains food for thought on the whole mail order business and suggests a profitable side line: "Every few months we are offered very large and attractive orders for Roofing and Building Papers from two of the largest mail order houses in the United States. They must sell great quantities of these goods or they would not buy them. Nearly all of their customers are farmers or people living in country towns, and your customers. Now, we believe that you would like to stop some of this and get the business yourself. How do they do it? By having the goods, calling their customers' attention to the fact, quoting prices and posting them. This business rightly belongs to you, and you can get it by adopting the same methods. Now, our experience elsewhere makes us quite sure that you could put on a great many squares of this Roofing at a good, clean profit, and sell a great deal more to people who would take it home and put it on themselves—Tins, Nails, Coating, all complete. Half the battle is having the goods and posting the people."

I have had a fair trade of Roofing Felts, Tarred Paper, Roof Coatings, Tin Caps and Nails, Painted and Galvanized Steel Roofing and Corrugated Iron and other goods in this line.

I shall not attempt to exhaust the subject of side lines. It is too broad a subject, and it would be tedious to even enumerate the thousand and one articles that can be profitably sold in a Hardware store. The dealer should never fail to fully

INVESTIGATE ALL THE NEW THINGS

illustrated in the trade journals or shown and described by the traveling men. It pays to have time to look over the traveling man's catalogue and listen to his story of new goods and receive the information he so freely gives.

But you say you have not sufficient capital to handle these side lines. Most of us buy Nails and Wire by the carload and tie up money for six to 12 months in order to save a few cents per hundred; we buy dozens, when half or quarter dozens would do as well; we have plenty of goods but not sufficient assortment; we have too many goods in proportion to our sales—too many dust covered articles. The nimble sixpence will earn more profit than a slow shilling. It is a well assorted stock that makes the most money.

ADD SIDE LINES.

Hardware dealers, it is for you to say whether we will remain in a nineteenth century rut and continue to sell the Hand Saws and other goods on which the manufacturers have made it impossible for us to make any profit, or whether we will wake up to these new century conditions and assert that we have some rights in the business world. "Be not like dumb, driven cattle." Be aggressive; be fighters. Make ourselves a power to right wrongs by giving this association our loyal support. It is yet possible to make a profit in the Hardware trade by proper hustle after new business and by increasing the volume of our trade by adding such side lines as can be made profitable and which will not conflict with dealers in other lines.

W. A. McIntire of Ottumwa read the following paper on

Some Elements of Success.

It is estimated that 95 per cent. of those engaged in commercial vocations fail in their pursuit. This does not imply that all such become bankrupt, or make assignments with a lack of assets to pay their liabilities. An individual or firm may have been in business for 40 years, but if he has made no progress, if it is the same old corner store, dirty, unkept and uninviting, his business life has been a failure, and, if he has not already, he soon will be relegated to the past.

THIS IS A PROGRESSIVE AGE

and the man in any line of business who does not keep fully abreast of the times can never catch the spirit after a Rip Van Winkle sleep. It is much easier to keep up than to catch up. The country is full of live, active, energetic men, who are pushing on in the world, and who will soon crowd out those who still pursue the methods of the past.

The same conditions prevail everywhere and in everything. The farmer, the lawyer, the press, the laborer, and even the minister are engaged in lines of work in which there are no trusts but an ever active, ceaseless competition. The pettifogger cannot cope with the man learned and up to date in law. The man that expounds the law divine can no longer punish his congregation an hour and a half with a sermon that should be delivered in 30 minutes, when the 30 minutes man can be secured, and he is numerous. The days of the Sickle and the Mowing Scythe are gone. The up to date farmer now has his Harvester, his Mower, his corn Planter and Hay Carrier, and all the tried and true improvements in his handiwork.

The successful mechanic uses the gray matter in his brain more, and his muscle less each year, that he may meet competition. The publisher is a back number unless he has linotype machines. And so all around us, and in our midst, are evidences that the world moves, and the people therein are vying one with another for supremacy.

THE RETAIL HARDWARE DEALER

belongs to the genus homo, is both human and humane, has red corpuscles in his blood, and some gray matter in his brain. You may see some evidences of his energy in his soiled clothes and hands, and, occasionally, a dark spot on his face, but he is here in full force to-day, and can be seen, so that a further description is unnecessary. He is undoubtedly influenced and governed by the

same conditions that prevail in other industrial lines.

We are met here to-day to consider these conditions, and to promote our business and cordial relations. Emerson said, "Mind is sharpened by coming in contact with mind," so in our discussions to-day we learn one from another.

What I shall say will be taken largely from my own experience and observation, which is neither as great nor as successful as others present who are my auditors. But I have gleaned a few facts in the past few years that to me have become axioms in my business relations. Among them I shall only undertake to mention a few.

A HARDWARE MERCHANT'S QUALIFICATIONS.

The qualifications necessary for the conducting of a successful retail Hardware business are many and varied, and call for the best efforts of every individual who who makes a success of it.

Location and the necessary capital are no small factors to be considered, but do not constitute by any means all of the essentials needed, in fact, they may be classed among the minor considerations when compared with the other qualities that go to make up success.

ABSOLUTE HONESTY.

Among the first requisites to success is absolute honesty with the customer, first, last and all the time, even at the expense of losing a good sale. Your reputation for honest and fair dealing will grow in the community, and, as a result, you will get the trade of many a newcomer in your locality. Strangers in a community ask their neighbors where is the best place to trade, and will they not always point out the most reputable house, knowing that their own reputation for truth and veracity will not suffer thereby ?

PRICES.

Again, you should always have your goods priced as low as your competitor. This will inspire confidence in time, and customers will learn that they do not have to watch the markets so closely for protection. It is not so much the size of the margins on sales, but the volume of your business that will contribute the largest per cent. on your investment. People buy in a hurry these days, and do not like to learn they have paid too much for goods later on.

Do not hesitate to follow the market down if goods decline, as the newspapers spread the report rapidly, and your competitor may do so first. It is hard to submit gracefully, but I have never found occasion to regret so doing. It will enable you to advance prices when goods go up, as the public realize you do not control the markets, and your competitor will surely do likewise when he is convinced of your doing so.

A CHEERFUL MANNER

toward the public on the street as well as behind the counter will do much toward helping you along, as every one likes a cheerful person and dislikes a grumbler.

PERSONAL ATTENTION TO THE DETAILS

in filling an order counts not a little. See that Locks and Butts are fitted with Screws. Have your goods well wrapped, make deliveries promptly, set the Stove up properly, and do not have to be asked to correct mistakes of careless employees. Spare no expense in giving satisfaction. If complaint is made, investigate at once, and rectify the same even if you submit to some injustice with unreasonable people. You have gained a point in having the crankiest man in the community say that you do his work to his satisfaction. This will constitute one of the best advertisements you can have.

This careful attention to details is absolutely necessary to permanent success. For example, observe the care, or so called "red tape" of the large institutions of the country, sparing no trouble nor expense with the most minute detail.

DO NOT DESPISE THE LITTLE THINGS,

such as small sales, customers with little money, children with their penny purchases, bargain hunters and pricers. They all add their quota to your business, and represent as strong an influence for or against your place as the wealthiest man in the community, perhaps more, with their lack of other multitudinous duties that harass the lives of men of means.

In looking after detail, care should be taken not to overlook the main lines and definite objects one has in view. It is well to place the detail work in the hands of a subordinate where possible, thus giving more time and opportunity to broaden out in every direction. Business, like mankind, must either grow or retrograde.

SIDE LINES.

There is no limit to the side lines a Hardware dealer may handle. It is much like the famous poker game Bill Nye speaks of with, "No limit but the ceiling." Each and every line should add a profit or be cast aside and that same energy spent on something else. It is well directed energy and enthusiasm that makes things go, and, having it, no one can surpass you.

EMPLOY GOOD HELP

and pay them liberally. They will reciprocate. An employee who is paid what he earns is not watching the clock, but is watching the interests of the house. They will explore new fields, and, under your direction, may make revelations that will be of value to you. Advise with them and help them. Do not make the mistake of trying to hold them back from learning. You can use their energy to your own and their profit. Push these young men out. Give one of them charge of the advertising, another the Stoves, another Paints, and so on. If your business is small, combine one or more of these, and hold him personally responsible for the success of this or that branch. With an occasional word of commendation from you, he is sure to make it win. Expand your business in every legitimate way possible. Your patrons like to trade with an energetic and progressive man.

ECONOMY

Let me enjoin you to be economists. Economy is the road to wealth in all stations and almost all conditions in life. One's expenses should always be governed largely by his income. The road to prosperity comes of living within one's means, and adding something to the inventory of the year before. Many a business man has been foundered on the reef of extravagance, while his next door neighbor, with less pretensions but more good sense, has lived within his means, and become wealthy.

THE CHARITY DOLLAR.

I do not mean that one shall be grouchy and penurious. If there is need of charity in the community, you should help. If a church is to be built, you are expected to, and should contribute, to its building. Don't give Nails, or Locks or Stoves, but give cold cash, and take your chances in competition on the Hardware needed. Charity trustees know the value of a dollar, but do not know so well the value of your goods. Get the confidence of their board, and you get the confidence of the organization or society. You will then not only get the trade of the Board of Trustees, but through them you will get an increased trade in the community. The spirit of giving, it is true, should not be solely for the reward. But if in giving $1 two will return, the charity dollar will have served a double purpose.

Economy, then, does not mean that you should give grudgingly, but rather that you donate judiciously and freely what you should, and it will return in duplicate.

CARRY A FULL LINE

Another essential to success is a full line of goods in the department in which you are engaged. A broken and incomplete retail stock of goods is meat for the catalogue house. A customer calls for a certain article in your line. You had sold out and neglected to reorder. He is disappointed. Goes home without it, examines his catalogue, and finds the identical article wanted, price and all. He sends for it, gets it, and it gives satisfaction. The way is opened for future orders, and you have lost the best part of his trade—the cash trade.

You are to blame in a certain sense for opening the way to the catalogue house. If you let your stock run down, it is often not for the want of funds, or credit, but from your own carelessness. If your means are limited, the wholesale house is near you. Send an order three times a week. Send a mail order every day in the week, if need be. Give small orders for each article, but get samples on your shelves.

THE ANNUAL INVENTORY.

Another and most important element in the routine of a successful business firm is the taking of an annual inventory—a rounding up, as it were, of the year's business. This is a dirty job, but it must be done. It necessitates a week's hard work, with no apparent immediate financial gain. The stock should be taken with great care, that your invoice may give you a definite knowledge of the year's business. It should be done at regular intervals, that you may be enabled to compare one year's business with another. In the course of time, the annual invoices become a very interesting history of your business.

I know there are those who think the gains are not worth the labor and pains required. But let us look at the

RESULTS OF AN INVOICE.

During the busy season goods get out of place, and get mixed, and sometimes get on a back shelf, out of sight, and remain there until you invoice. At this time everything is found, assorted, and put in sight.

If you find out of date goods, or damaged goods, they

are or should be put in a conspicuous place, where they may be sold at some price. A good salesman will sell anything you ask him to sell. Such goods must be disposed of. They are worth more than they will be at the next stock taking.

At this time, fit up and repair all Locks out of order. Fix up your Pumps that have been robbed. Gather up the parts of articles, and put them together. Straighten things up generally. Start out with a new, clean stock after invoicing. By so doing your stock will never get shelf worn and out of date. A $10,000 stock of goods should have less than $100 worth of what is termed unsalable goods.

YOU SHOULD KNOW AT THE CLOSE OF THE YEAR

your average daily credit sales, your average daily cash sales, total sales for the year, total purchases, and total expenses for the year. What per cent. of sales expenses have been, &c.

If your sales have fallen off and expenses increased, why? If sales have increased and expenses lessened, why? This is the time of the year to take a retrospective view of the year's work, or of ten years' work if desired. If you are disappointed in the result of the year's work take wisdom from the past, and apply it to the future. A prospective view is profitable. If your expenses have been out of proportion, regulate them now. If there is any branch in a department that has not been productive, lop it off or give it special attention.

STICK TO YOUR BUSINESS.

One other thought. Stick to your business. Perseverance brings success. Don't imagine every other dealer has a better location, and a better business than yourself. The royal road to wealth is fenced up. There are obstructions all along the way. Remove them. Better stay where you are. Haven't you done well enough for the past year, for the past ten years? Changing localities is expensive, besides you are taking chances on bettering your condition.

President Cole stated that at Detroit he had met George W. Hubbard, of Flint, Mich., president of the Michigan Association, and that he had found Mr. Hubbard one of the brightest and most progressive Hardware dealers in all his acquaintance, and had received from him many suggestions on the lines laid out in some of the foregoing papers.

The following committee was appointed on nominations of officers: H. Vincent of Fort Dodge, Thomas Larson of Eldora and L. H. Kurtz of Des Moines.

THURSDAY AFTERNOON SESSION.

Local Associations.

Louis Lindenberg, president of the Dubuque Hardware Club, an organization which was formed in September last and includes every retail dealer in the city, gave an account of the club and of the manner in which it had been formed. All that was needed to secure this organization was some one to go at it and see all the dealers. He and another merchant had taken up the work and soon had all the dealers to agree to get together. They have accomplished a great deal of good in the six months which have elapsed since the organization was effected. They have maintained uniform prices throughout the city and have promoted a cordial feeling among all the dealers so that one feels free to call on the others if he finds himself short of some odd article. They close all the stores at 6.30 p. m., believing that a merchant as well as laboring men should have shorter hours. A word of warning was given to dealers making local agreements as to prices, and that was not to put their prices high but to make them as reasonable as possible and allow only a fair profit.

The good results accruing from local organizations in their cities were described by President Cole, Secretary Brelsford, Vice-president Miles and others.

Q. A. Sloane, of McGregor, gave his experience in endeavoring to form a county organization. The dealers in the heart of the county were favorable, but those near the border were fearful that if an agreement was made on prices they would suffer from the competition of dealers in the adjoining county. He was discouraged by this development and proceeded no further in the work of organization.

Change in Constitution.

Mr. Miles reported an amendment to the constitution recommended by the Executive Committee, empowering the committee to select the place for the annual meeting. It was adopted.

Membership Fee Raised.

An amendment to the by-laws was also recommended raising the membership fee from $3 to $5, which was carried by a unanimous vote.

The Executive Committee, acting as auditing committee, reported that the accounts of the officers had been examined and found correct.

On motion of A. B. Carhart, of Manchester, a rising vote of thanks was given to the manufacturers, jobbers and retail merchants of Dubuque for their hospitality.

Election of Officers.

The Committee on Nominations presented their report, as follows:

For president, W. A. McIntire of Ottumwa.

For Vice-president, E. G. Penrose of Tama.

They further recommended the selection of the Executive Commitee by permitting the members from each Congressional district to name one member of the committee. The report was adopted and the secretary was instructed to cast a unanimous ballot for the nominees for president and vice-president.

President McIntire took the chair and returned thanks for the honor conferred upon him, making a forcible and most appropriate address, in which he alluded to the practical benefits derived by himself from the association, stated that he relied upon the members to give him their cordial support and trusted that all would put their shoulders to the wheel and endeavor to make the next annual meeting the best ever held in Iowa.

The names of those selected to serve on the Executive Committee are as follows:

EXECUTIVE COMMITTEE.

Jacob Seither, Keokuk.
A. C. Heymen, Miles.
Louis Lindenberg, Dubuque.
T. S. Narum, Waukon.
L. H. Kurtz, Des Moines.
M. W. Keating, Afton.
H. A. Cole, Council Bluffs.
H. Vincent, Fort Dodge.
W. H. Miller, Cherokee.

A rising vote of thanks was given to the retiring officers on motion of E. P. Messer of Sheldon.

The Executive Committee selected the following to serve on the

GRIEVANCE COMMITTEE:

E. P. Messer, Sheldon; S. R. Miles, Mason City; C. M. Doxsie, Algona; George Lister, Manchester; Frank Kupper, Burlington.

Co-operative Insurance.

G. W. Eastwood of Monticello introduced a resolution favoring co-operative insurance, by organization if necessary, but it was not acted upon, Mr. Cole explaining that the Minnesota Association offered just such an opportunity, and recommending the Iowa dealers to send their individual applications for policies to that organization.

The convention then adjourned *sine die*.

OUTSIDE OF THE CONVENTION.

It is quite a notable fact that both the new president and vice-president of the association are members of the Iowa State Senate.

The new president of the association is a man of fine presence, with splendid qualifications as a presiding officer. Mr. McIntire was born in Ottumwa, Wapello County, Iowa, in 1849, and has resided there ever since. He was educated at Ames' Agricultural College and was county superintendent of public schools for Wapello County for ten years. In 1890 he concluded to engage

in the Hardware business and purchased a stock of goods, establishing a new store, which has proved to be a very successful venture. Mr. McIntire is now a member of the State Senate of Iowa.

The attendance of representatives of manufacturing and jobbing interests was quite large. The headquarters of the association were at the Julien Hotel, and numerous exhibits were made in the parlors and sample rooms. The Dubuque manufacturers and jobbers showed their appreciation of the selection of their city for the meeting of the association by bounteous hospitality. Under the leadership of J. W. Conchar and H. E. Tredway the comfort and pleasure of the members were ministered to at all times. The establishments in Dubuque directly interested in the Hardware trade who supplied the funds necessary for the entertainment of the members were the Schreiber & Conchar Mfg. Company, the A. Tredway & Sons Hardware Company, the A. Y. McDonald & Morrison Mfg. Company, the Klauer Mfg. Company, the Adams Company and the Schreiber, Conchar & Westphal Hardware Company. They provided every member with a ticket to an entertainment at the Grand Opera House on Thursday evening, after which an enjoyable collation was spread at the hotel, followed by an interchange of sociability which was prolonged until a very late hour. On Friday morning, at the invitation of the same firms, the members and their friends gathered in front of the hotel and took carriages for a drive around the picturesque city. They were taken to an observatory on a high bluff and given a view of the city, thence were driven through a large portion of the residence section and were subsequently taken to various manufacturing and mercantile establishments. They thus visited the factory of the Schreiber & Conchar Mfg. Company, where they witnessed different processes in the manufacture of Registers, Door Hangers, Mrs. Potts' Sad Irons, &c.; the wholesale Hardware house of A. Tredway & Sons Hardware Company, where they pretty thoroughly inspected the stock; the works of the A. Y. McDonald & Morrison Mfg. Company, where they learned a great deal about the manufacture of House and Farm Pumps, and the factory of the Klauer Mfg. Company, where they saw Galvanized Sheets cut up by large shears and converted rapidly into Eaves Trough, Conductor Pipe and other Sheet Metal Specialties. The visitors were impressed with the extent of the Hardware interests of Dubuque as well as by the beauty and business importance generally of this flourishing city. The A. Tredway & Sons Hardware Company distributed dainty pocket memorandum books, and the Klauer Mfg. Company furnished all their visitors with handsome wall calendars.

Fred. H. Cozzens, Detroit, secretary of the Interstate Retail Hardware Dealers' Association, who was announced to make an address at the convention, was prevented from attending by illness.

The representatives of various interests connected with the Hardware trade who were in attendance at the convention were as follows:

J. O. Becraft and J. L. Parker, representing the Estate of P. D. Beckwith, Dowagiac, Mich., who distributed Round Oak Stove stick pins.

Wm. F. Hyde, C. N. Kelly and J. T. Ryan, Brand Stove Company, Milwaukee, Wis., who distributed beautifully bound memorandum books.

A. N. Melvin, Lawrence Bros., Sterling, Ill.

E. W. McGookin, Stowell Mfg. & Foundry Company, South Milwaukee, Wis.

Julian W. Perkins and L. H. Rounds, E. C. Atkins & Co., Indianapolis, Ind., who distributed leather card cases combined with memorandus books.

W. H. Bennett and A. H. Ferguson, Reading Hardware Company, Chicago.

A. J. Collins, the Majestic Mfg. Company, St. Louis, who distributed silver pin trays.

Geo. W. Trout and G. Ruhling, Geo. W. Trout & Co., Chicago.

C. G. Wright and P. A. Pamplin, Buck's Stove & Range Company, St. Louis, Mo.

E. H. Norris, Norris & Loring Hardware Company, Cedar Rapids, Iowa.

J. D. Warren, J. D. Warren Mfg. Company, Chicago.

A. E. Flick, H. K. Tompkins, C. F. Kelly, F. F. Austin, F. H. Gadd and J. T. Stuart, Hibbard, Spencer, Bartlett & Co., Chicago.

E. L. Compton, Toledo Register Company, Toledo, Ohio.

Daniel Stern and Sidney P. Johnston, the *American Artisan*, Chicago.

Chas. H. Burton, *Stoves and Hardware Reporter*, St. Louis.

Chas. Lindemann and Earl C. Moore, J. P. Lindemann & Sons, Milwaukee, Wis.

A. C. Ohlendorf, United States Steel Lock Company, Clinton, Iowa.

C. Glick, Lennox Machine Company, Marshalltown, Iowa.

W. D. Ellsworth, American Steel & Wire Company, Chicago.

E. B. Waterman, Black & Germer, Chicago.

W. B. Barney, the Fuller-Warren Company, Milwaukee, Wis

A. X. Smith, Ringen Stove Company, St. Louis, Mo.

Oscar M. Parrish, Globe Manufacturers' Supply Company, Chicago.

F. T. Carroll, Malleable Steel Range Mfg. Company, South Bend, Ind.

F. P. Tenney, Smith & Hemenway Company, New York City, who distributed pocket diaries.

H. W. Beegle, Electric Cutlery Company, Newark, N. J.

F. C. Shays, American Sheet Steel Company, St. Louis.

M. G. Rodearmel, Minneapolis, Minn., representing Schreiber & Conchar Mfg. Company, Stover Mfg. Company, F. G. Perry & Co., Edwin Hills, Iwan Bros., Hamblin & Russell Mfg. Company, and a number of other manufacturers of Hardware.

The exhibits made by manufacturers and jobbers comprised the following:

The Reading Hardware Company, Chicago, displayed a fine assortment of Door Plates, Door Handles, Knobs, Escutcheons, &c., in all finishes, handsomely mounted on hard wood panels.

The Wilcox Mfg. Company, Aurora, Ill., exhibited a large line of Door Hangers, Latches, Double Spring Hinges, Brackets and other small goods and one of their Velox Grindstones.

The Malleable Steel Range Mfg. Company, South Bend, Ind., displayed five samples of their line of Malleable Ranges.

J. P. Lindemann & Sons, Milwaukee, Wis., exhibited the Rochester Co-operative Stove Company's leading Oak Stove, photographs of the full line of Stoves made by the same company and a beautiful model in miniature of their Bermuda Warm Air Furnace.

The Brand Stove Company exhibited samples of their high class Brand Cast Iron Ranges, Admiral Hard Coal Base Burners and Brand Oak Stoves.

The Toledo Register Company, Toledo, Ohio, exhibited specimens of the Toledo Side Wall Register.

The J. D. Warren Mfg. Company, Chicago, displayed a large section of the Warren Hardware Shelving, fitted with samples to illustrate accurately the system on which this Shelving is constructed. The company enjoyed a special advantage in being able to invite the members to inspect the Hardware store of Walter B. Baumgartner, in Dubuque, which had been fitted with a great deal of this Shelving some years since, thus affording an opportunity for the inspection of the Shelving in actual use, with all the surroundings of a practical store. Mr. Baumgartner cordially received all visitors and gave them full particulars about his method of conducting the store, which is one of the finest in Iowa. The Warren Company favored all the members of the convention with a valentine calling attention to their Shelving in verse and inclosing an artistic calendar. The valetine had a cover printed in imitation of a piece of hard wood.

Hibbard, Spencer, Bartlett & Co., Chicago, made an exhibit of Cutlery, Sporting Goods, Fishing Tackle, Chrysolite Enameled Ware, Paints, Brushes, &c., using for the purpose the headquarters of an association of four traveling men who maintain a joint office in Dubuque. These men represent Hardware, boots and shoes, dry goods, hats and caps, so that their lines do not conflict. The opportunity was thus presented to the firm to make a much more extensive exhibit than could have been done in a room in the hotel. It attracted a great many visitors.

The Stowell Mfg. & Foundry Company, South Milwaukee, Wis., exhibited Parlor Door Hangers, Registers and other specialties, including the new Cutter Dandelion Puller, to pull weeds without stooping.

E. C. Atkins & Co., Indianapolis, Ind., displayed specimens of their Hand Saws, selected to show the different grades and styles of finish.

F. M. Jaeger & Co., Dubuque Hardware merchants, had a window exhibit of the Electric Cutlery Company's goods, arranged so as to give visiting Hardware dealers some points of practical interest in connection with window displays.

Reynoldson Bros. of Manson, Iowa, exhibited in the hall of the convention a Wire Cloth Rack which they had designed for their own use but are now prepared to sell to the trade. This Rack has a number of brackets for rolls of Wire Cloth, with a movable shear in front, enabling the length of Wire Cloth to be cut from a roll accurately and rapidly.

Among the Hardware Trade.

Thomas & Garrett have opened up in the Harness, Saddlery and Tinware business in Sisseton, S. D.

Chas. Halverson of Linden, Wis., has purchased the Hardware stock of Thos. Perkins, Dodgeville, and has commenced business under the style of Halverson & Co.

W. O. Ash & Co., Mt. Pleasant, Utah, have discontinued their Hardware business.

Newsome & Brooke have succeeded I. D. Newsome, Sons & Co., McKinney, Texas, dealers in Shelf Hardware, Agricultural Implements, Wagons, grain, groceries, &c.

J. H. Troeh & Sons will open up at Watertown, S. D., about March 1 with a stock comprising Shelf Hardware, Bicycles, Stoves and Tinware, Sporting Goods, Paints, Oils, &c.

Lindley & Carr have purchased the business formerly conducted by the McNaughton Company, Jeffersonville, Ind., dealers in Shelf and Heavy Hardware, Agricultural Implements, Stoves, Sporting Goods, &c.

H. H. McCormick has lately commenced business in Yates Center, Kan., carrying a line embracing Shelf and Heavy Hardware, Stoves, Tinware, Farm Implements, &c.

William Noble has disposed of his Hardware, Stove, Farm Implement and Sporting Goods business at Kerens, Texas, to Mabry, Ray & Co.

R. S. Taylor & Son have succeeded the firm of G. W. Wilson & Co. at both Denton and Sanger, Texas, dealers in Shelf and Heavy Hardware, Stoves and Tinware, Agricultural Implements, &c.

Geo. L. Brown has succeeded Hull & Brown in the Hardware, Agricultural Implement and furniture business at Highland, Kan.

H. C. Scott is successor to Scott & Garrison, dealers in Hardware, Farm Implements, Stoves, Wind Mills, Sewing Machines, Harness, &c., Braman, O. T.

J. T. McCabe & Co. have succeeded Paul Mowry in the Hardware and Farm Implement business at Persia, Iowa.

T. Thomsen has purchased the interest of his partner in the firm of T. N. Petersen & Co., Hardware, Agricultural Implement and Stove merchants, Charter Oak, Iowa, and will continue the business under his own name.

The Schreiber & Conchar Mfg. Company, Dubuque, Iowa, manufacturers of hardware specialties, are enjoying a trade which not only extends to all parts of this country but covers many foreign countries. The establishment was founded in 1888 for the purpose of putting a patent door hanger on the market. The company continue to manufacture door hangers, but also make a great variety of other products, such as registers for warm air furnaces, ventilators, numerous specialties in builders' hardware, Mrs. Potts' sad irons, &c. They have a large foundry, machine shop and warehouse located on the Illinois Central Railroad. The works are well equipped with the most improved appliances, automatic labor saving machines being a conspicuous feature of the machine shop.

Peerless Bread Cutter.

The Peerless bread cutter is being introduced to the trade by Green & Neble Bros., 125 Bush street, Brooklyn, N. Y. As shown in the accompanying illustration the knife cuts with a saw motion, as is permitted by the levers from which it is suspended, to any thickness from 1-32 inch to 4 inches. The thickness of the cut is regulated by a gauge that is easily adjusted. It is claimed that this machine will also cut corned beef, ham, cheese, and that the knife is made of good steel and is as sharp as a razor. The knife is provided with a protector, so that the fingers cannot be cut when the knife is in motion. The cutter is black enameled, with the exception of the blade, which is of polished steel, and the sides of the rack in which the loaf is held, which are made of galvanized iron. The machine weighs about 7 pounds, and when set up measures 12½ x 13 x 18 inches. When knocked down for shipping it measures about 2½ x 12 x 18 inches.

The Peerless Bread Cutter

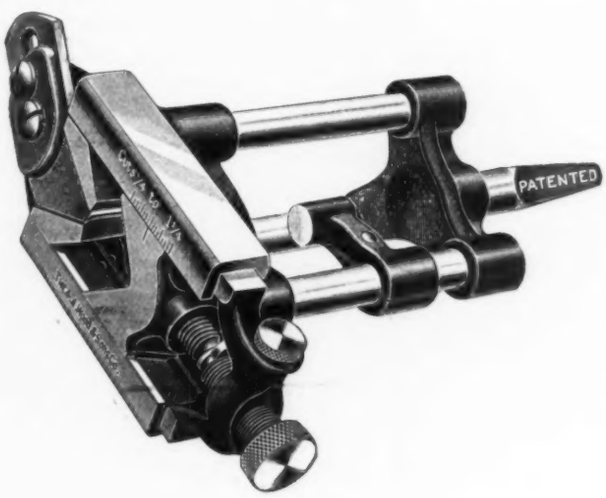
Dennison's Glue in Tubes.

A novel and attractive method of putting up glue has been introduced by the Dennison Mfg. Company, 198 Broadway, New York, who are placing it on the market in collapsible tubes, as shown in the accompanying illustration. It is pointed out that the glue in this form is always ready, does not dry up, and can all be used. In order to get the glue out of the tube a pin hole is made in the cap and the bottom of the tube gently pressed. If the hole becomes clogged it can be opened again with a pin. It is claimed that the glue has the best adhesive qualities, is very strong, and is made as nearly water proof as possible.

Dennison's Glue in Tubes

Wood's Universal Hollow Auger.

A. A. Wood & Sons Company, 58 Peters street, Atlanta, Ga., manufacturers of hardware, tools and machinery, have just put on the market under recent patents Wood's Universal hollow auger, as here illustrated. It is designed to cut tenons in diameter from ¼ to 1¼ inches inclusive, any length up to 4 inches; or if desired it can be furnished to cut a tenon 6 inches long. All screws are milled from steel bars, and the wearing parts and slotted screws are hardened, thus prolonging the life of the tool. The head and shank pieces, which are high grade steel castings, are connected by three polished steel spindles, on one of which is clamped a length stop. In the head are rectangular grooves in which slides a sash that passes entirely through it and carries on one end the knife and at the other engages the adjusting screw. Also sliding in the head and being narrow enough to go between the two side pieces of this sash is a V block that furnishes two bearings for the tenon, the third bearing being furnished by the concaved part of the sash at the inner corner of the knife. The adjusting screw has a neck in its center by which it is held in a fixed position with reference to the head and by reason of which the turning of the adjusting screw will move the knife and V block simultaneously each at its proper speed toward or from the center of the auger for adjustment as to size of tenon to be cut. The small screw in the top edge of the sash locks the adjusting screw by pressing a small shoe onto it. The adjustment of the knife for thickness of chip is by means

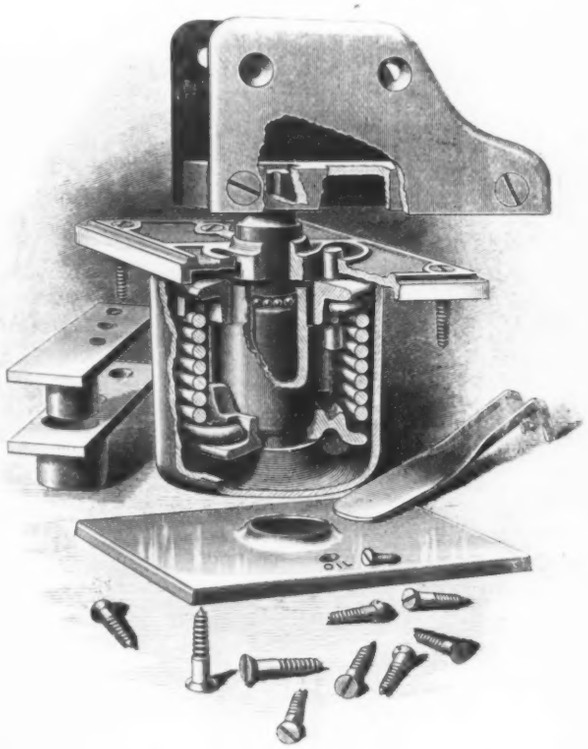


Wood's New Universal Hollow Auger.

of a screw (not shown in cut) behind the knife and the screw shown nearest the edge of the knife, so that the knife can be adjusted to cut any thickness of chip without in the least changing the set of the auger as to size of tenon.

Bommer Ball Bearing Floor Hinges.

Bommer Bros., 257-271 Classon avenue, Brooklyn, N. Y., have just put on the market the Bommer ball bearing floor hinge here illustrated. An important feature of this construction which makes an attractive appearance when applied, as nothing but the side plates are visible on the door, is the facility with which it can be fitted and adjusted. The tension can be quickly increased or decreased to meet varying conditions while the hinge is in place. At the lower left side of the illustration is shown the pivot and socket for the top of the door, which in position are not seen. Especial attention is drawn by the makers to the raised ball bearings, which insure an easy movement, great durability and balanced power. Being elevated on a center post and covered by a hollow spindle, the ball bearing is protected from the influence of water, dirt and grit. The hinge has a broad top bearing plate which gives the screws an adequate hold on the floor, instead of being too near the cylinder mortise. The coil springs are of the best quality, oil tempered, and all parts are interchangeable. Owing to its cylindrical shape the hinge is easily fitted flush with the floor and the lower pivot centered near the jamb, the cups of the different sizes being all of the same hight but varying in diameter, according to the requirements of the four sizes. When this hinge is in the floor the entire mechanism is covered with a plate, as seen in the bottom foreground of the illustration,



Sectional View and Parts of Ball Bearing Floor Hinge.

making a neat finish, provision being made for oiling, as shown. The hinges are made of steel, bronze and brass metal in a great variety of finishes to match the hardware trim, almost any desired finish being quickly furnished to order if not regularly in stock. This hinge can be supplied for doors from ⅞ to 3½ inches thick.

Handy Sifter and Strainer.

The Handy sifter and strainer has been placed on the market by Sidney Shepard & Co., Buffalo, N. Y., and New York City, and is shown in the accompanying illustration. It has a tinned wire bottom and measures 7½

Handy Sifter and Strainer.

x 2½ inches. It is stated by the manufacturers that it thoroughly mixes the flour with baking powder or other ingredient, that it will fit on top of an ordinary bowl or baking dish, and that it is more convenient to use than the plain tin rim sieve.

The Modern Cork Puller.

The Modern cork puller, shown herewith, is being placed on the market by the Gilchrist Company, 43 and 45 South Canal street, Chicago, Ill. The pullers are made in two styles. The No. 1 machine clamps by a thumb screw to a counter or shelf, and is intended for use in hotels, restaurants, clubs, saloons, &c. The No. 2 puller is attached by two thumb screws to an upright surface such as a sideboard, icebox, door frame or wall, and is for general household use. To operate the puller the bottle is held in the mouth piece of the machine and by one short upward movement of the handle the cork screw automatically rotates into the cork and by pushing the handle down the cork is extracted from the bottle. The same movement causes the cork screw to rotate out of the extracted cork, which is automatically discharged from the machine.

The Modern Cork Puller

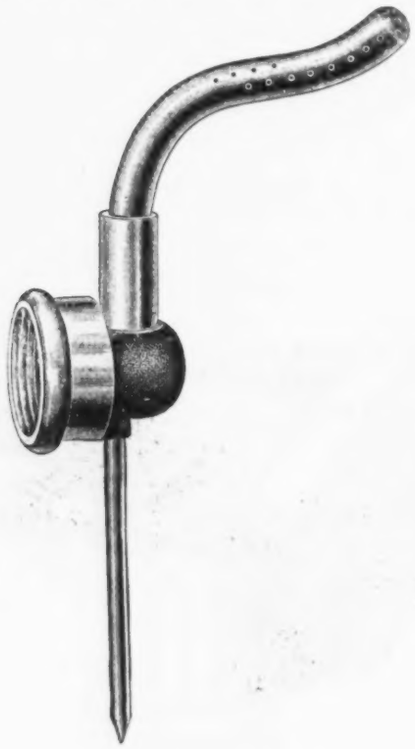
St. Louis Air Rifle.

The St. Louis Air Rifle Company, 811-813 Monroe street, St. Louis, Mo., are now offering their St. Louis Air Rifle, as here shown. It has an air chamber into which the air is compressed by means of an air pump. When the trigger is pulled a valve is opened which releases the air, the gun being discharged without vibration or recoil. There are no springs whatever. The metal portions are brass, nickeled. The pump extends from the muzzle to the trigger and the long stroke makes it easy to charge the gun. One stroke will charge it to shoot as hard as spring guns, while the force may be increased as much as desired, sufficient strength being required to charge it heavily to render it safe in the hands of a child. Five or six strokes, it is said, will send a bullet through a half-inch board, or propel it over 300 feet. The air chamber is located in the rear and is capable of sustaining all the pressure that may be applied. As the bullet travels the entire length of the barrel greater accuracy is assured. Special advantages are an adjustable peep sight, simple valve and perfected trigger, together with a rigid frame. The gun is 33 inches long and one dozen in a case weigh but 25 pounds. Two calibers are made: No. 2 shooting BB shot, and No. 3 using 000 shot, No. 2 being recommended by the makers for small boys and No. 3 for adults and large boys.

St Louis Air Rifle.

The Cracker-Jack and Cloudburst Sprinklers.

The Cracker-Jack sprinkler, while small in size, will, it is claimed by its manufacturers, the Crescent Brass & Iron Company, Detroit, Mich., do better work than most of its larger competitors, and also that it will sprinkle a surface from 36 to 48 feet in diameter, according to the water pressure. As shown in the accompanying illustration, it is a spear sprinkler. The Cracker-Jack sprinklers are made of brass, nickel plated, and are packed six in a box, six dozen in a case, weighing 25 pounds per case. The Crescent Cloudburst sprinkler, made by the same company, consists of a standard and sled made of enameled iron, the head and arms being made of brass, heavily nickel plated. It stands 12 inches high and will, it is claimed, distribute water evenly over a surface 48 feet in diameter.



The Cracker Jack Sprinkler.

Frost & Williams, Corning, N. Y., have bought out the Hardware business formerly conducted by C. E. Drake, which they will continue in connection with their old store at 27 East Market street.

C. W. Brelsford, Villisca, Iowa, who is well known to the trade of that State as secretary of the Iowa Hardware Dealers' Association, has disposed of his Hardware, Stove, Vehicle and Farm Implement business to Allard & McCormick.

Current Hardware Prices.

REVISED FEBRUARY 19, 1901.

General Goods.—In the following quotations General Goods—that is, those which are made by more than one manufacturer, are printed in *Italics*, and the prices named represent those current in the market as obtainable by the fair retail Hardware trade, whether from manufacturers or jobbers. They apply to such quantities of goods as are usually purchased by retail merchants. Very small orders and broken packages often command higher prices, while lower prices are frequently given to larger buyers.

Special Goods.—Quotations printed in the ordinary type (Roman) relate to goods of particular manufacturers, who are responsible for their correctness. They usually represent the prices to the small trade, lower prices being obtainable by the fair retail trade, from manufacturers or jobbers.

Range of Prices.—A range of prices is indicated by means of the symbol @. Thus 33⅓@33⅓&10% signifies that the price of the goods in question ranges from 33⅓ per cent. discount to 33⅓ and 10 per cent. discount.

Cut Prices.—*In the present condition of the market there is a good deal of cutting of prices by the jobbing trade, whose quotations are often lower than those of the manufacturers.*

Names of Manufacturers.—For the names and addresses of manufacturers see the advertising columns and also THE IRON AGE INDEX SUPPLEMENT (May 3, 1900), which gives a classified list of the products of our advertisers and thus serves as a DIRECTORY of the Iron, Hardware and Machinery trades.

Standard Lists.—A new edition of "Standard Hardware Lists" has been issued and contains the list prices of many leading goods.

Additions and Corrections.—The trade are requested to suggest any improvements with a view to rendering these quotations as correct and as useful as possible to Retail Hardware Merchants.

Adjusters Blind—

Domestic, ₩ doz. $3.00....33⅓@33⅓&10%
North's.....10%
Zimmerman's—See *Fasteners, Blind.*

Window Stop—

Ives' Patent.....25&5%
Taplin's Perfection.....50%

Ammunition—See *Caps, Cartridges, Shells, &c.*

Anvils—American—

Eagle Anvils.....₩ lb 7¼@7¾¢
Hay-Budden, Wrought.....9@9¼¢
Horsehoe brand, Wrought.....9¼@9¾¢
Samson.....₩ lb 7¾@8¢
Trenton, Wrought.....₩ lb 8¼@8¾¢

Imported—

Armitage's Mouse Hole.....8¾@9¼¢
Peter Wright's.....9¼@9¾¢

Anvil, Vise and Drill—

Millers Falls Co., $18.00.....20%

Apple Parers—See *Parers, Apple, &c.*

Aprons, Blacksmiths'—

Hull & Hoyt Co.:
Lots of 1 doz.....25%
Smaller Lots.....20%
Lots of 3 doz.....30%

Augers and Bits—

Com. Double Spur.. ...70&10@....
Boring Machine Augers.....60&10&10@70&10%
Car Bits, 12-in. twist.....60@60&10%
Jennings' Pattern:
Auger Bits.....60&10&5@60%
Ford's Auger and Car Bits..
40&10@40&10&10%
Forstner Pat. Auger Bits.....25%
C. E. Jennings & Co.:
No. 10 ext. lip. R. Jennings' list....40%
No. 30. R. Jennings' List.....50%
Russell Jennings'.....25&10&2½%
L'Hommedieu Car Bits 15&10@15&10&5%
Pugh's Black.....20%
Pugh's Jennings' Pattern.....35%
Snell's Auger Bits.....60%
Snell's Bell Hangers' Bits.....50%
Snell's Car Bits, 12-in. twist.....60%
Wright's Jennings Bits (R. Jennings' list).....50%

Bit Stock Drills—

Standard List.....65&5@70%

Expansive Bits—

Clark's small, $18; large, $26 ....50&10%
Lavigne's Clark's Pattern, No. 1, ₩ doz., $26; No. 2, $18.....50&10%
C. E. Jennings & Co., Steer's Pat....33⅓%
Swan's.....60%

Gimlet Bits—

Common Double Cut..gro. $2.00@2.75
German Pattern.....gro. $3.25@4.50
Double Cut, makers' lists.....50&5@50&10%

Hollow Augers—

Bonney Pattern, per doz $12.00@12.50
Ames.....25&10%
New Patent.....25&10%
Universal.....20%

Ship Augers and Bits—

Ford's.....40%
Snell's.....40%
C. E. Jennings & Co.:
L'Hommedieu's.....15&10%
Watrous'.....40%

Awl Hafts, See *Hafts, Awl.*

Awls—

Brad Awls:
Handled.....gro. $2.75@3.10
Unhandled, Shouldered gro.65@66c
Unhandled, Patent.....gro. 66@70¢
Peg Awls:
Unhandled, Patent....gro. $1@1.10
Unhandled, Shouldered.gro.65@70c
Scratch Awls:
Handled, Common..gro. $3.50@4.00
Handled, Socket..gro. $11.50@12.00

Awl and Tool Sets—See *Sets, Awl and Tool.*

Axes—

First Quality, best brands.$6.25@6.50
First Quality, other brands$6.00@6.25
Jobbers' Special Brands:
Good Quality.....$5.00@5.50
Best Quality.....$6.25
Cheap, Handled Axes.....$5.50@5.75
Beveled, add 25c doz.

Axle Grease—See *Grease, Axle.*

Axles—Iron or Steel.

Concord, Loose Collar.....4½c
Concord, Solid Collar.....5 c
No. 1 Common.....3@3¼c
No. 1½ Com. New Style...3½@4 c
No. 2, Solid Collar.....5½@5¾c
Nos. 7, 8, 11 to 14 ... .75&10%
Nos. 15 to 18..... ....60&10&10%
Nos. 19 to 22.....80%
5% cash 10 days.

Boxes, Axle—

Common and Concord, not turned..
lb. 8c
Common and Concord, turned..lb. 9c
Half Patent.....lb. 9c

Balances—Sash—

Caldwell new list..... .....50%
Pullman's 60%

Spring—

Spring Balances .....50@50&10%
Chatillon's Light Spg. Balances...40&10%
Chatillon Straight Balances.....40%
Chatillon Circular Balances 50%
Chatillon's Large Dial.....30%
Peerless.....50%

Barb Wire—See *Wire, Barb.*

Bars—Crow—

Steel Crowbars, 10 to 40 lb., per lb..
3@3¼c

Beams, Scale—

Scale Beams, List Jan. 12, '83.30&10%
Chattillon's No. 1.....30%
Chattillon's No. 2.....40%

Beaters—Egg—

Standard Co.:
No. 5 Steel Handle Dover..₩ gro. $6.50
No. 10 Cast Handle Dover..₩ gro. $8.00
No. 10 Steel Handle Dover.₩ gro $8.00
No. 15 Extra Heavy Steel Handle, ₩ gro. $15.00
Rival, ₩ gro.....$10.00
Taplin Mfg. Co.: ₩ gro.
No. 50 Small Family size.....$6.50
No. 100 Regular Family size.....$8.00
No. 102 Regular Family size, tinned.....$9.50
No. 150 Large Family size.....$15.00
No. 152 Large Family size, tinned $17.00
Lyon's, Standard size.....₩ doz. $1.75
Wonder (S. S. & Co.).....₩ gro. $7.50

Bellows—

Blacksmith, Standard List.70@70&10%
C. E. Jennings & Co., Blacksmith..60&10%
C. E. Jennings & Co., Hand.....33⅓%

Blacksmiths—

Inch..	*2*	*2½*	*3*	*3½*	*4*
Each	*$3.50*	*3.75*	*4.25*	*4.80*	*5.35*
Extra Length:					
Each	*$4.00*	*4.55*	*5.10*	*5.60*	*6.40*

Molders—

Inch..	*9*	*10*	*11*	*12*	*14*	*16*
Doz...	*$6.75*	*7.25*	*8.50*	*9.50*	*12.00*	*14.50*

Hand—

Inch...	*6*	*7*	*8*	*9*	*10*	*12*
Doz....	*$3.75*	*4.25*	*4.50*	*5.00*	*5.7*	*6.75*

Net Prices.

Bells—Cow—

Ordinary goods.....75&5@75&10%
High grade.....70@70&10%
Jersey.....75&10%
Texas Star.....50&10%

Door—

Abbe's Gong.....45%
Barton Gong.....55%
Home, R. & E. Mfg. Co.'s.....55&10%
Lever and Pull, Sargent's ....20&10&10%

Hand—

Hand Bells, Polished.....60@60&10%
White Metal.....55@55&10%
Nickel Plated.....50@50&10%
Swiss 60%
Silver Chime.....33⅓@33⅓&10%

Miscellaneous—

Farm Bells..... lb. 2@2¼c
Steel Alloy Church and School..... 50&10&5@60%
Wilmot & Hobbs Mfg. Co., Gongs....70%

Belting—Rubber—

Common Standard.....75@75&10%
Standard.....70@70&10%
Extra..... .60&10&5%
High Grade..... 0&10@50&10&5%
Boston Belting Co.:
Seamless Stitched, Imperial.....45%
Boston.....50&5%
Niagara.....60&5%

Leather—

Extra Heavy, Short Lap..50&10@60%
Regular Short Lap 60&10@60&10&5%
Standard .....60&10&10@70&5%
Light Standard.....70@70&10%

Cotton—

Rossendale-Reddaway B. & H. Co.:
Sphinx Brand.....60&10%
Durable Brand..... ..... 70%

Bench Stops—See *Stops, Bench*

Benders and Upsetters, Tire—

Green River Tire Benders and Upsetters.....20%
Stoddard's Lightning Tire Upsetters...40@50%

Bicycle Goods—

John S. Leng's Son's 1899 list:
Chain.....50%
Parts.....50%
Spokes.....50%
Tubes.....60%

Bits—

Auger, Gimlet, Bit Stock Drills, &c.—See *Augers and Bits.*

Bit Holders—See *Holders.*

Blind Adjusters—See *Adjusters, Blind.*

Blind Fasteners—See *Fasteners, Blind.*

Blind Staples—See *Staples, Blind.*

Blocks—Tackle—

Common Wooden.....70@70&10%
Cleveland Steel.....50&10@60&10%
Ford's Star Brand Self Lubricating .. 60&10%
Hollow Steel, Ford's Pat. Star Brand... 50&10%
Lane's Patent Automatic Lock and Junior 30%
Stowell's Novelty, Mal. Iron.....50%
See also *Machines, Hoisting.*

Boards, Stove—

Zinc, Crystal, &c.... .....50&10%

Bolts—

Carriage, Machine &c.—

Common, list Jan. 30, '95..70@2½@..%
Norway Iron, $3.00, list Oct. 7, '84.. 75@75&10%
Phila. Eagle, $3.00 list May 24, '99.... 80@80&10%
Bolt Ends, list Jan. 30, '95..... 70&10&2½@..%
Machine, list Oct. 1, '99.70&10&2½@..%
Machine with C. P., C. & T. Nuts.70%

NOTE—*The rapid advances in manufacturers' prices enable the jobbers to cut prices freely.*

Door and Shutter—

Cast Iron Barrel, Round Brass Knob:

Inch.....	*3*	*4*	*5*	*6*	*8*
Per doz...	*$0.33*	*.26*	*.45*	*.57*	*.80*

Cast Iron Spring Foot:

Inch.....	*6*	*8*	*10*
Per doz.....	*$1.00*	*1.25*	*1.75*

Cast Iron Chain, Flat, Japanned:

Inch.....	*6*	*8*	*10*
Per doz.....	*$0.85*	*1.20*	*1.50*

Cast Iron Shutter, Brass Knobs:

Inch.....	*6*	*8*	*10*
Per doz.....	*$0.60*	*.90*	*1.15*

Wrought Barrel Brass Knob:

Inch.....	*3*	*4*	*5*	*6*	*8*
Per doz ..	*$0.44*	*.50*	*.61*	*.70*	*1.23*

Wrought Barrel .....70&10@75&5%
Wrought " Bronzed.40&5@50&10%
Wrought Flush, B. K..50&10@60&10%
Wrought Shutter...40&10&10@60&5%
Wrought Square Neck..... 50@50&10%
Wrought Sunk.....50@50&10%
Ives' Patent Door.....60%

Stove and Plow—

Plow .....60&10@..%
Stove.....77½%

Tire—

Common.....77½%
American Screw Company:
Norway Phila., list Oct. 16, '84.....75%
Eagle Phila., list Oct. 16, '84.....85%
Bay State, list Dec. 28, '99.....77½%
Franklin Moore Co.:
Norway Phila., list Oct. 16, '84.....75%
Eagle Phila., list Oct. 16, '84.....85%
Eclipse, list Dec. 28, '99.....77½%
Port Chester Bolt & Nut Company
Empire, list Dec. 28, '99.....77½%
Keystone Phila. list Oct. '84.....85%
Norway Phila., list Oct. '84.....75%

Borers, Tap—

Borers Tap, Ring, with Handle:

Inch.....	*1¼*	*1½*	*1¾*	*2*
Per doz..	*$3.50*	*4.50*	*5.00*	*6.50*
Inch		*2¼*		*2½*
Per Doz....		*$7.50*		*10.25*

Enterprise Mfg. Co., No. 1, $1.25; No. 2, $1.65; No. 3, $2.50 each.....25@30%

Boring Machines—*See Machines, Boring.*

Boxes Mitre—

C. E. Jennings & Co.....40%
Seavey's, per doz., $30.....40%

Braces—

NOTE.—*Most Braces are sold at net prices.*
Common Ball, American...$1.15@1.25
Barber's..... 50&10&10@60&10%
Fray's Genuine Spofford's.....60%
Fray's No. 70 to 120, 81 to 123, 207 to 414.....60%
C. E. Jennings & Co.....50&10%
P., S. & W. Co., Peck's Patent 50&10@60&10%

Brackets—

Wrought Steel.....70&10@75&5%
Bradley's Wire Shelf:
Full cases.....80%
Broken cases.....75&10%
Griffin's Pressed Steel.....75&10%
Griffin's Folding Brackets.....70&10%

Bright Wire Goods—See *Wire and Wire Goods.*

Broilers—

Wire Goods Co.....70@70&10%

Buckets, Well and Fire—See *Pails*

Bucks, Saw—

Hoosier..... ₩ gro. $36.00

Bull Rings—See *Rings, Bull.*

Butts—Brass—

Wrought list Sept., '96.....40@40&5%
Cast Brass, Tiebout's.....50%

Cast Iron—

Fast Joint, Broad.....50@50&10%
Fast Joint, Narrow.. .....50@50&10%
NOTE.—*Jobbers often sell the following at 70&5%:*
Loose Joint.....70@70&5%
Loose Pin.....70@70&5%
Mayer's Hinges.....70@70&5%
Parliament Butts.....70@70&5%

Wrought Steel—

Loose Joint.....
Table and Back Flaps..
Narrow and Broad.....
Inside Blind..... } *75@75&5%*
Loose Pin.....
Loose Pin, Ball and... Steeple Tip
Bronzed Wrt. Nar. and Inside Blind Butts.....50&10@50&10&5%

Cages, Bird—

Heudryx, Brass:
3000, 5000, 1100 series.....5%
1200 series.....33⅓%
200, 300, 600 and 900 series.....40&10%
Hendryx Bronze:
700, 800 series.....40&10%
Hendryx Enameled.....40&10%

Calipers—See *Compasses, Calks. Toe and Heel—*

Blunt, 1 prong.....per lb. 3¼@4c
Sharp, 1 prong.....per lb. 4¼@4½c
Perkins' Blunt.....₩ lb 5 ¢
Perkins' Sharp.....₩ lb 5½¢

Can Openers—See *Openers, Can*

Cans, Milk—

	5	8	10 gal.	
Illinois Pattern.	$1 75	2.10	2.25	each.
Iowa Pattern...		2.40	2.60	each.
Buffalo Pattern.		2.80	2.50	each.
	20	30	40	qts.
New York Patt'rn	3.00	3.25	3.40	each.
Baltimore Patt'rn	2.50	2.85	3.10	each.

Cans, Oil—

Buffalo Family Oil Cans:

3	5	10 gal.
$48.00	60.00	108 gro.

Caps—Percussion—

Eley's E. B.....50c
G. D.....per M 32@34c
F. L.....per M 37@40c
G. E.....per M 47@50c
Musket..... .....per M 57@60c

Primers—

Berdan Primers, $1.00.....8%
B. L. Caps (Sturtevant Shells) $1.00.....5%
All other primers.....$1.10@$1.15

Carpet Stretchers—
See *Stretchers, Carpet.*

Cartridges—
B. B. Caps, Con., Ball Swgd.....$1.90
B. B Caps, Round Ball...$1.12@1.18
Blank Cartridges:
32 C. F., $5 50.....10d&5%
38 C. F., $7 0.....10d&5%
22 cal. Rim, $1.50.....10d&5%
32 cal. Rim, $2.75.....10d&5%
Central Fire.....25%
Pistol and Rifle.....15d&5%
Primed Shells and Bullets.....15d&5%
Rim Fire Sporting.....50%
Rim Fire, Military.....15d&5%

Casters—
Bed.....70@70d&10%
Plate.....75@75d&10%
Philadelphia.....75@75d&10%
Boss.....70&10%
Boss Anti-Friction.....70&10%
Martin's Patent (Phœnix).....45%
Payson's Anti-Friction.....70&10&10%
Standard Ball Bearing.....45%
Tucker's Patent, low list.....30%

Cattle Leaders—
See *Leaders, Cattle.*

Chain—
American Coil, Less than Casks:

3/16	1/4	5-16	3/8	7-16	1/2	9-16
7.30	5.50	4.40	3.55	3.40	3.30	3.25
5/8	3/4	7/8 to 1¼ inch.				
3.25	3.20	3.20 cents per lb.				

Cask lots deduct 25c per 100 lbs.
German Coil, list July 24, '97, 60&10d&10%
German Halter Chain, list July 24, '97.....60&10d&10%
Traces, Western Standard: 100 pair
6½—6-3, Straight, with ring...$26.00
6½—6-2, Straight, with ring..$27.00
6½—8-3, Straight, with ring..$31.00
6½—10-2, Straight, with ring..$34.50
Add 2¢ per pair for Hooks.
Twist Traces 2¢ per pair higher than Straight Link.
Trace, Wagon and Fancy Chains, Eastern list.....60@60d&5%
Jack Chain, list July 10, '93:
Iron.....60@60d&10%
Brass.....60@60d&10%
Safety Chain.....70@70d&10%
Gal. Pump Chain.....lb 4½@4¾c
Covert Sad. Works:
Breast, Hitching and Rein Chains..50%
Covert Mfg. Co.:
Breast.....35&2%
Halter.....35&2%
Heel.....35&2%
Rein.....35&2%
Stallion.....35&2%
Oneida Community:
Eureka Coil and Halter.....60@60&5%
Niagara Coil and Halters....60@60&5%
Niagara Cow Ties.....45&5@45&10&5%
Am. Coil and Halters....50@10&5@60%
Am. Cow Ties.....35&5@40&5%
Wire Goods Co.:
Dog Chain.....60%
Universal Dbl-Jointed Chain.....45%

Chalk—(From Jobbers.)
Carpenters', Blue.....gro. 45c
Carpenters', Red.....gro. 40c
Carpenters', White.....gro. 35c
See also Crayons.

Chalk Lines—See *Lines.*

Checks, Door—
Bardsley's.....40&10%
Columbia.....50&10%
Eclipse.....60@60&10%

Chests, Tool—
American Tool Chest Co.:
Boys' Chests, with Tools.....55%
Youths' Chests, with Tools.....40%
Gentlemens' Chests, with Tools.....30%
Farmers', Carpenters', etc., Chests, with Tools.....30%
Machinists' and Pipe Fitters' Chests, Empty.....50%
C. E. Jennings & Co.'s Machinists' Tool Chests.....25@25&10%

Chisels—
Socket Framing and Firmer
Standard List.....70d&10@..%
Buck Bros.....30%
Charles Buck.....30%
C. E. Jennings & Co. Socket Firmer No. 10.....60&10%
C. E. Jennings & Co. Socket Framing No. 15.....60&10%
Swan's.....70d&5%
L. & L. J. White.....30@30&5%

Tanged—
Tanged Firmers.....40d&5@40&5&10%
Buck Bros.....30%
Charles Buck.....30%
C. E. Jennings & Co. Nos. 191, 181.....25%
L. & L. J. White, Tanged.....25&5%

Cold—
Cold Chisels, good quality lb. 14@16c
Cold Chisels, fair quality.....*lb. 12c*
Cold Chisels, ordinary.....*lb. 8@9c*

Chucks—
Beach Pat., each $8.00.....20%
Skinner Patent Chucks:
Combination Lathe Chucks.....40%
Drill Chucks, Patent and Standard..30%
Drill Chucks, New Model.....2 %
Independent Lathe Chucks.....40%
Improved Planer Chucks.....20%
Universal Lathe Chucks.....40%
Face Plate Jaws.....35%
Standard Tool Co.:
Improved Drill Chuck.....45%
Union Mfg. Co.:
Combination.....40%
Czar Drill.....30%
Geared Scroll.....30%
Independent.....40%
Union Drill.....50%
Universal.....40%
Face Plate Jaws.....35%

Clamps—
Adjustable, Hammers'.....20@20&5%
Cabinet, Sargent's.....50&10%
Carriage Makers', P., S. & W. Co. 40&10%
Carriage Makers' Sargent's.....50&10%
Beaver, Parallel.....33⅓&10%
Lipman & Utica Drop Forge & Tool Co.....40%
Saw Clamps, see *Vises, Saw Filers'.*

Cleaners Walk—
Star Socket, All Steel....$4.00 net
Star Shank, All Steel....$3.75 net
W. & B. Shank, All Steel, 7½ in., per doz., $3.35; 8 in., $3.40; 8½ in., $3.50.

Cleavers, Butchers'—
Foster Bros.....30%
New Haven Edge Tool Co.'s.....40&10%
Fayette R. Plumb.....33⅓&10&10&5%
P., S. & W.....33⅓&5@33⅓&10%
L. & L. J. White.....25%

Clippers—
Chicago Flexible Shaft Company
Handy Toilet.....₱ doz. $7.20
Mascotte Toilet.....₱ doz. $4.40
Monitor Toilet.....₱ doz. $9.00
Stewart's Patent.....₱ doz. $10.00

Clips, Axle—
Eagle and Superior ¼ and 5-16 inch.....70d&10%
Norway, ¼ and 5-16 inch..70@7..d&10%

Cloth and Netting, Wire
—*See Wire, &c.*

Cocks, Brass—
Hardware list (Globe, Kerosene, Racking, &c.).....65d&10%

Coffee Mills—See *Mills, Coffee.*

Collars Dog—
Brass, Pope & Stevens' list.....40%
Embossed, Gilt, Pope & Stevens' list 30&10%
Leather Pope & Stevens' list.....40%

Compasses Dividers, &c.
Ordinary Goods.....70d&10@75%
Bemis & Call Hdw. & Tool Co.:
Dividers.....65%
Calipers, Call's Patent Inside.....55%
Calipers, Double.....65%
Calipers, Inside or Outside.....65%
Calipers, Wing.....60%
Compasses.....50%
J. Stevens A. & T. Co.....25&10%

Conductor Pipe, Galvanized—
Factory Shipments to Jobbers:

Territory.	Carload. Loose.	L. C. L. Nested.
Eastern....	75d&10%	75d&5%
Central....	75d&7½%	75d&2½%
Southern....	75d&5%	75%
S. Western.	75%	70d&10d&2½%

Terms 2% for cash.
See also *Eave Trough and Elbows*

Coolers, Water—

Nos.	2	3	4	6
Labrador 8 gal.	$11.50	$14.00	$17.50	$20.00
	$24.00			
Nos	3	4	6	8
Iceland.. 10 14 gal.	$23.00	$25.00	$30.00	$37.50
	$57.00	$72.00		

Coopers' Tools—
See *Tools, Coopers'.*

Cord— Sash—
Braided, Drab.....*lb. 25c*
Braided, White, Common, lb 17½@18c
Cable Laid Italian, lb. A, 18c; B, 16c
Common India.....*lb 9 @9¼c*
Cotton Sash Cord, Twisted....12@16c
Patent Russia.....*lb. 12½@13c*
Cable Laid Fussia.....*lb. 13½@14c*
India Hemp, Braided.....*lb 14@15c*
India Hemp.....*lb. 10@12c*
Patent India.....*lb. 1 0@12c*
Pearl Braided, cotton.....₱ b 17@18¢
Massachusetts, White.....₱ b 22½¢
Massachusetts, Drab.....₱ b 26½¢
Eddystone Braided Cotton.....₱ b 19¢
Harmony Cable Laid Italian.....₱ b 18¢
Ossawan Mills:
Crown, Solid Braided White...₱ b 18¢
Braided, Giant, White.....₱ b 17¢
Peerless:
Cable Laid Italian.....16¢
Cable Laid Russian.....14¢
Cable Laid India.....12¢
Braided India.....18¢
Phœnix, White.....19¢
Samson:
Braided, Drab Cotton.....₱ b 32½¢
Braided, Italian Hemp.....₱ b 32½¢
Braided, Linen.....₱ b 49¢
Braided, White Cotton, Spot.₱ b 28½¢
Silver Lake:
A quality, Drab, 40¢.....15%
A quality, White, 35¢.....15%
B quality, Drab, 35¢.....15%
B quality, White, 30¢.....15%
Italian Hemp, 40¢.....15%
Linen, 57½¢.....15%

Wire, Pictures—
Braided or Twisted.....85@85d&10%
Note.—There is a good deal of confusion in lists, some using old list and others the new list.

Corn Knives and Cutters
—See *Knives, Corn.*

Corn Planters—
See *Planters, Corn—*

Crackers, Nut—
Little Giant.....₱ gr. $34.00

Cradles—
Grain.....50%

Crayons—
White Round Crayons, gross 5½@6c
Cases, 100 gro., $5.00, at factory.
D. M. Steward Mfg. Co.
Metal Workers' Crayons, gr. $2.50
Soapstone Pencils, round, flat or square.....gr. $1.50
Rolling mill Crayons.....gr. $2.50
Railroad Crayons (composition) gr. $2.00
Case lots 20%
See also *Chalk.*

Creamery Pails—See *Pails, Creamery.*

Crooks, Shepherds'—
Fort Madison, Heavy.....₱ doz. $7.00
Fort Madison, Light.....₱ doz. $6.50

Crow Bars—See *Bars, Crow.*

Cultivators—
Victor Garden.....₱ doz. $10.00

Cutlery Table—
"Gross Goods." list Jan.. '01..net@5%
Extra 10% to purchasers of $250 worth in six months.

Cutters— Glass—
Smith & Heminway Co.....30%

Meat—
Hale's..Nos. 11 & 111 12 & 112 13 & 113
Per doz.. *$10.80* *13 20* *18.00*

American.....30%

Nos.	1	2	3	4	B	5
Each	$5	$7	$10	$25	$50	$60

Connecticut:

No.	0	1	8	10	12
Each	$1.75	2.25	3.00	8.00	8.50

Enterprise.....25@25&7½%

Nos.	5	10	12	22	32
Each	$2	$3	$2.50	$4	$6

Dixon's, ₱ doz.....33⅓&10%

Nos.	1	2	3	4
	$14.00	$17.00	$19.00	$30.00

Home No. 1, ₱ doz. $22.75.....50&10%
Little Giant, ₱ doz.....33⅓@33⅓&5%

Nos.	305	310	312	340	322
	$35.00	$48.00	$44.00	$71.00	$68.00

Sterling.....33⅓&5%

Nos	1	2
Each	$1.00	$2.50

Miles' Challenge, ₱ doz.....45@45&10%

Nos.	1	2	3
	$22.00	$30.00	$40.00

New Triumph No. 605, ₱ doz. $24.00.. 33⅓&5%
Woodruff's, ₱ doz.....40%

Nos.	100	150
	$15.00	$18.00

Chadborn's Smoked Beef Cutter, ₱ doz. $60.00
Enterprise Beef Shavers.....25@30%

Slaw and Kraut—
Henry Disston & Sons:
Slaw, Corn Grater, &c.....40%
Kraut Cutters 24 x 7, 26 x 8, 30 x 9.55%
Kraut Cutters 36 x 12, 40 x 12.....40%
Tucker & Dorsey Mfg. Co.:
Kraut Cutters.....40%
Slaw Cutters, 1 Knife, ₱ gr....$18@$20
Slaw Cutters, 2 Knife, ₱ gr...$22@$36

Tobacco—
All Iron, Cheap.....*doz. $4.25@$4.50*
Enterprise.....25@30%
National, ₱ doz. $21.00.....40%
Sargent's, ₱ doz. $24.00.....45&10%

Washer—
Appleton's, ₱ doz. $16.00.....50&10&10%
Bonney's.....₱ doz. $4.75

Diggers, Post Hole, &c.—
Dalbey Post Hole Auger..per doz. $10.00
Iwan's Improved Post Hole Auger....40%
Iwan's Perfection Post Hole Digger.... ₱ doz. $9.00
Kohler's Universal.....₱ doz. $14.00
Kohler's Little Giant.....₱ doz. $15.00
Kohler's Hercules.....₱ doz. $12.00
Kohler's Invincible.....₱ doz. $10 00
Kohler's Rival.....₱ doz. $9.00
Kohler's Pioneer.....₱ doz. $9.00
Never-Break Post Hole Diggers, ₱ doz. $24.00.....60%
Samson, ₱ doz. $34.00.....25%

Dividers—See *Compasses.*

Dog Collars—See *Collars, Dog.*

Door Checks—
See *Checks, Door.*

Door Springs—
See *Springs, Door.*

Drawers, Money—
Tucker's Pat. Alarm Till No. 1, ₱ doz. $18; No. 2, $15 No. 3, $14; No. 4, $18.

Drawing Knives—
See *Knives, Drawing.*

Drills and Drill Stocks—
Common Blacksmiths' Drill..each $1.50@$1.75
Blacksmiths' Self-feeding.....*each $3.75@4.00*
Breast, Millers Falls, each $3.00..15&10%
Breast, P., S. & W.....30@30&10%
Goodell Automatic Drills..40&5@40&10%
Johnson's Automatic Drills Nos. 2 and 3.....16⅔%
Johnson's Drill Points.....25&10%
Ratchet, Curtis & Curtis.....25%
Ratchet, Parker's.....40%
Ratchet, Weston's.....20@25%
Ratchet, Whitney's, P. S. & W...40&10%
Whitney's Hand Drill, No. 1, $10.00; Adjustable, No. 10, $12.00.....33⅓%

Twist Drills—
Standard List.....*60d&5@65d&5%*

Drill Bits or Bit Stock Drills—See *Augers and Bits.*

Drill Chucks—See *Chucks.*

Dripping Pans—
See *Pans, Dripping.*

Drivers, Screw—
Baisey's Screw Holder and Driver, ₱ doz. 2½-inch, $6; 4-in., $7.50 6-in., $9..40%
Buck Bros.....30%
Buck Bros' Screw Driver Bits.....97½%
Champion.....40&10%
Douglass Mfg. Co.....20&20&10%
Fray's Hol. H'dle Sets, No. 3, $12.00 50%
Gay & Parsons' Ratchet.....35%
Goodell's Automatic 50&10&10@50&10&10&5%
Mayhew's Black Handle.....50%
Mayhew's Monarch.....45&10%
New England Specialty Co.....50&10%
Sargent & Co.'s:
Nos. 1, 50, 35 and 60.....50&10&10%
Nos. 20 and 40.....60⅔&10%
Screw Driver Bits.....₱ doz. 50@70¢
Smith & Hemenway Co.....40&5%
Stanley's R. & L. Co.'s:
No. 64, Varnished Handles.....60&10%
No. 86.....70&10%
Swan's:
Nos. 65 to 68.....50%
No. 40.....40&10%
Nos. 25, 35 and 45.....20&10&10%

Eave Trough, Galvanized
Factory Shipments to Jobbers.

Territory.	Carload.	L. C. L.
Eastern.....	80d&10d&5%	80d&10%
Central.....	80d&10d&2½%	80d&7½%
Southern....	80d&10%	80d&5%
S. Western...	80d&2½%	80%

Terms, 2% for cash.
See also *Conductor Pipe.*

Egg Beaters—See *Beaters, Egg*

Egg Openers—
See *Openers, Egg.*

Elbows and Shoes—
Factory shipments to jobbers......60d&10d&5%
Perfect Elbows (S. S. & Co.).....40%

Emery, Turkish—

	4 to 56 lb.	5½ to 150 lb.	Flour
Kegs.....	5c	5½c	3¾c
½ Kegs....lb.	5½c	5¾c	3¾c
¼ Kegs....lb.	6c	6c	4c
10-lb cans, 10 in case.....	6½c	7c	6c
10-lb. cans, less than 10....	10c	10c	8c

NOTE.—*In lots 1 to 3 tons a discount of 10% is given.*

Enameled and Tinned Ware—See *Ware, Hollow.*

Escutcheon Pins—
See *Pins, Escutcheon.*

Extractors, Lemon Juice
—See *Squeezers, Lemon.*

Fasteners, Blind—
Zimmerman's.....50&10%

Faucets—
Cork Lined.....70d&5@70d&10d&5%
Metallic Key, Leather Lined.....70@70d&10%
Red Cedar.....60@60d&5%
B. & L. B. Co.:
West's Lock, Open and Shut Key 50&10%
John Sommer's Peerless Tin Key.... 40%
John Sommer's Boss Tin Key.....50%
John Sommer's Victor Metal Key.50&10%
John Sommer's Duplex Metal Key....60%
John Sommer's Diamond Lock.....40%
John Sommer's I. X. L. Cork Lined...50%
John Sommer's Reliable Cork Lined 50&10%
John Sommer's Common Cork Lined.70%
John Sommer's Chicago Cork Lined .60%
John Sommer's O. K. Cork Lined.....50%
John Sommer's Perfection Cedar....40%
Star.....60@60&5%
Star, Metal Plug, new list.....40@40&5%
Lockport, Metal Plug, reduced list.60&5%
McKenna, Brass:
Burglar Proof, N. P.....35%
Improved, ¾ and ⅞ inch.....35%
Self Measuring:
Enterprise, ₱ doz. $36.00.....40%
Lane's, ₱ doz. $36.00.....40&10%
National Measuring, ₱ doz. $36.00...40%

Felloe Plates—
See *Plates, Felloe.*

Files—Domestic—
List revised Nov. 1, 1899.
Best Brands.....70@75d&7½%
Good Brands.....75&10@75d&10d&10%
Fair Brands.....80@80d&10%
Second Quality.....80d&10@80d&25%

Imported—
Stubs' Tapers, Stubs' list, July 24, '97.....25%

Fixtures, Grindstone—
Net Prices:

Inch....	15	17	19	21	24
Per doz.	$2.60	2.75	3.00	3.50	4.40

Stowell's Giant Grindstone Hanger.... ₱ doz $6.00
Stowell's Grindstone Fixtures.....50%
P., S. & W. Co.....50&10&10%
Reading Hardware Co.....30&20&10%
Sargent's.....60&10&10%

Fodder Squeezers—
See *Squeezers, Fodder.*

Forks—
Sept. 1, 1900, list.
Grain or Barley Forks, 16 to 20 inches.....70d&6%
Hay, 2 tine.....65%
Hay, 3 tine.....66⅔%
Hay, 4 tine, Header and Barley Forks, 13 to 16 inches.....66⅔%
Manure, 4 tine.....70%
Manure, 5 and 6 tine.....70%
Spading.....70d&5%
Iowa Dig-Ezy Potato.....65%
Victor, Hay.....60&5%
Victor, Manure.....70%
Victor, Header.....60&30%
Champion, Hay.....66⅔%
Champion, Manure.....70%
Columbia, Hay.....66⅔&5%
Columbia, Manure.....70%
Columbia, Spading.....70%
Hawkeye Wood Barley 4 tine ₱ doz. $5.00; 6 tine, $6.00.
W. & C. Potato Digger.....65%
Acme Hay.....60&20&7½%
Acme Manure.....60&25%
Dakota Header.....70&10&2½%
Jackson Steel Barley.....70&10&2½%
Kansas Header.....6&20%
W. & C. Favorite Wood Barley 4 tine, ₱ doz., $5.00; 5 tine, $6.00
Plated.—See *Spoons.*

Frames—
Saw—
Red, Polished and Varnished..doz. $1.15@$1.30
White.....*doz. 75@80c*

Screens and Frames—
See *Screens.*

Freezers, Ice Cream—
Qts... 2 3 4 6 8 10
Best, $1.45 1 65 1.95 2.40 3.20 4.20
Good $1 25 1.40 1.70 2.15 2.75 3.75
Fair, $1.00 1.10 1.30 1.75 2.30 2.90

Fruit and Jelly Presses—
See *Presses, Fruit and Jelly.*

Fry Pans—See *Pans, Fry.*

Fuse—
Per 1000 Feet.
Hemp Fuse.....*$2.60*
Cotton Fuse.....*2.90*
Single Taped Fuse.....*3.25*
Double Taped Fuse.....*4.20*
Triple Taped Fuse.....*5.00*
¼ Reel

Gates, Molasses and Oil—
Stebbins'.....80&10@80&10&10%

Gauges—
Marking, Mortise, &c......55&10@55&10d&10%
Barrett's Comb. Roller Gauge.....₱ doz $6.75@7.25
Stanley R. & L. Co.'s Butt & Babbet Gauge.....20&10%

Wire, Brown & Sharpe's.....25%
Wire, Morse's.....35%
Wire P., S. & W. Co.....10&10&5%

Gimlets—
Nail, Metal, Assorted. gro. $1.40@1.75
Spike, Metal, Assorted gro. $3.00@3.50
Nail, Wood Handled, Assorted. gro. $4.00@4.25
Spike, Wood Handled, Assorted gro. $5.00@5.25

Glass, American Window
Jobbers' List, Sept. 1, 1900.
Small lots from store:
Single and Double Strength, all sizes.....85&5%
10% to be added on all first quality, both Single and Double.

Glue—Liquid, Fish—
List A, Bottles or Cans, with Brush. 37½@50%
List B, Cans (½ pts., pts., qts.)...... 35½@48%
List C, Cans (½ gal., gal.) ....25@45%

Glue Pots—See *Pots, Glue.*

Grease, Axle—
Common Grade.....gro. $5.00@6.00
Dixon's Everlasting....10-lb pails, ea. 85¢
Dixon's Everlasting, in bxs., ¥ doz. 1 lb $1.20; 2 lb $2.00
Snow Flake: 1 qt. cans, per doz. $2.00; 2 qt., $3.20; 1 gal. cans per doz. $6.00; 3 gal. $16.00; 5 gal. $24.00 } 10%

Grindstone Fixtures—
See *Fixtures, Grindstone.*

Guards, Snow—
Cleveland Wire Spring Co.:
Galv. Steel ¥ 1000.....$9.00
Copper ¥ 1000.....$18.00

Gun Powder—See *Powder.*

Hack Saws—See *Saws.*

Hafts, Awl—
gro.
Peg Patent, Leather Top..$4.80@5.25
Peg Patent, Plain Top....$3.50@3.75
Sewing, Brass Ferrule. ...$1.50@1.60
Saddlers', Brass Ferrule..$1.35@1.45
Peg, Common.....$1.25@1.35
Brad, Common.....$1.50@1.75

Halters and Ties—
Covert Mfg. Co., Web.....45&2%
Covert Mfg. Co., Jute Rope.....45&2%
Covert Mfg. Co., Sisal Rope.....30&2%
Covert's Saddlery Works', 98 list, W'db.. 60&10%
Covert's Saddlery Works, Leather 60&10%
Covert's Saddlery Works, Jute....60&5%
Covert's Saddlery Works, Sisal.....60%
Covert's Saddlery Works, Manila..60&5%
Covert's Saddlery Works, Cotton.....70%

Hammers—
Handled Hammers—
Heller's Machinists'.....50@50&5%
Heller's Farriers.....50@50&5%
Magnetic Tack, Nos. 1, 2, 3, $1.25, $1.50, $1.75.....40&10%
Fecs, Stow & Wilcox.....40@40&10%
Fayette R. Plumb:
Plumb, A. E. Nail.....40&10@50%
Engineers' and B. S. Hand..... 60&10&7½%
Machinists' Hammers..... 60&10&7½%
Riveting and Tinners'.....50@50&10%
Sargent's C. S. New List.....40&10%

Heavy Hammers and Sledges—
5 lb. and under...lb. 45c
5 to 5 lb.....lb. 36c } 80&10@80
Over 5 lb.....lb. 30c } &10&10%
Wilkinson's Smiths'.....9½c@10c lb.

Handcuffs and Leg Irons
See *Police Goods.*

Handles—
Agricultural Tool Handles—
Axe, Pick, &c.....60@60&10%
Hoe Rake, Fork, &c.....60@60&10%
Shovel, &c., Wood D Handle.50@50&5%

Cross-Cut Saw Handles—
Atkins'.....40&5%
Champion.....45@45&10%
Disston's.....50%

Mechanics' Tool Handles—
Auger, assorted.....gro. $2.30@2.50
Brad Awl.....gro. $1.25@1.50
Chisel Handles:
Apple Tanged Firmer, gro. ass'd. $2.25@2.35; large, $2.50@2.60.
Hickory Tanged Firmer, gro. ass'd. $1.75@2.20; large, $3.50@3.70.
Apple Socket Firmer, gro ass'd, $1.70@1.85; large. $2.00@2.25
Hickory Socket Firmer. gro ass'd. $1.60 @ $1.75; large .75 @ $2.00
Hickory Socket Framing.....gro. ass'd. $2.50@$2.75; large, $2.65@$2.85
File, assorted.....gro. $1.60@$1.15
Hammer, Hatchet, Axe, &c.....60%
Hand Saw, Varnished, doz. 70@75c
Not Varnished.....55@60c
Plane Handles:
Jack, doz. 25c; Jack Bolted..55@60c
Fore, doz. 35@38c; Fore, Bolted.. 70@75c

Hangers—
Barn Door, New Pattern, Round Groove, Regular:

Inch	3	4	5	6	8
Doz	$0.85	1.30	1.90	1.95	2.45

Barn Door, New England Pattern, Check Back, Round Groove, Regular:

Inch	3	4	5	6
Doz	$1.45	1.90	2.55	3.10

Chicago Spring Butt Co.:
Friction.....25%
Oscillating.....25%
Big Twin.....25%
Chisholm & Moore Mfg. Co.:
Baggage Car Door.....50%
Elevator.....40%
Railroad.....55%
Cronk & Hanger Co.:
Loose Axle.....60%
Roller Bearing.....60&10%
Lane Bros.:
Parlor, Ball Bearing.....$4.00
Parlor, Standard.....$3.25
Parlor, New Model.....$2.75
Parlor New Champion.....$2 40
Barn Door, Standard.....60&10%
Covered.....50&10&10&5%
Special.....60&10%
Lawrence Bros.:
Advance.....60%
Cleveland.....60&10%
Crown.....60%
New York.....60%
Peerless.....60&10%
Sterling.....60%
McKinney Mfg. Co.:
No. 2, Standard, $18.....60&10%
No. 1, Special, $13.....60&10%
Stowell Mfg. and Foundry Co.:
Atlas.....60%
Baggage Car Door.....50%
Climax Anti-Friction.....50%
Elevator.....40%
Interstate.....50&10%
Magic.....50%
Matchless.....60%
Nansen.....60&10%
Parlor Door.....50%
Railroad.....50&10%
Street Car Door.....50&10%
Steel, Nos. 300, 400, 500.....40&10%
Zenith for Wood Track.....50&10%
Taylor & Boggs Foundry Co.:
Kidder's.....50&50&10%
Van Wagoner & Williams Hdw Co.:
American Trackless.....33⅓&10%
Wilcox Mfg. Co.:
Bike Roller Bearing.....60&10%
C. J. Roller Bearing.....60&10%
Cycle Ball Bearing.....50%
Dwarf Ball Bearing.....40%
Ives, Wood Track.....60&10%
L.T. Roller Bearing.....60&10&5%
New Era Roller Bearing.....50&10%
O. K. Roller Bearing.....60&10&5%
Prindle, Wood Track.....60%
Richards' Wood Track.....60%
Richards' Steel Track.....50&10%
Sprunger Roller Bearing.....60&10%
Tandem Nos. 1 and 2.....60%
Underwriters' Roller Bearing ...40%
Wilcox Auditorium Ball Bearing.50%
Wilcox Barn Trolley No. 123.....40%
Wilcox Fire Trolley, Roller Bearing.....30%
Wilcox Le Roy Noiseless Ball Bearing.....40%
Wilcox New Century.....50&10&10%
Wilcox Trolley Ball Bearing....40%

Extra 5&10% often given.

Harness Menders—See *Menders.*

Harness Snaps—See *Snaps.*

Hasps—
McKinney's Perfect Hasp ¥ doz.40&10%
Wrought Hasps, Staples, &c.—See *Wrought Goods.*

Hatchets—
Best Brands.....40&10@50%
Cheaper Brands....50&10@50&10&5%
Note.—Net prices often made.

Hay and Straw Knives—
See *Knives.*

Hinges—
Blind and Shutter Hinges—
Surface Gravity Locking Blind:
(Victor; National; 1858 O. P.; Niagara; Clark's O. P.; Clark's Tip; Buffalo.)

No.	1	3	5
Doz. pair	$0.75	1.45	2.90

Mortise Shutter:
(L. & P., O. S., Dixie, &c.)

No.	1	1½	2	2½
Doz. pair	$0.60	.55	.52	.45

Mortise Reversible Shutter, (Buffalo, &c.)

No.	1	1½	2
Doz. pair	$0.65	.60	.55

Parker.....70@75%
North's Automatic Blind Fixtures, No. 2, for Wood, $9.00; No. 3, for Brick, $11.50.....10%
Reading's Gravity.....75&10%
Sargent's, Nos. 1, 3, 5.....60½&10%
Sargent's, Nos. 11 & 13.....70&10%
Wrightsville H'dware Co.:
O. S. Lull & Parker.....80&2½%
Acme, Lull & Porter.....75&10%
Queen City Reversible.....75&10%
Stenger's Positive Locking, Nos. 1 & 3.....70&10&5%
Shepard's Noiseless, Nos. 60, 65, 55.....70&10%
Niagara, Gravity Locking, Nos. 1, 3 & 5.....75&7½%
1888, Old Pat'n, Nos. 1, 3 & 5....75&7½%
Tip Pat'n, Nos. 1, 3 & 5.....75&7½%
Buffalo Gravity Locking, Nos. 1, 3 & 5.....75&7½%
Shepard's Double Locking, Nos. 20 & 25.....70&10%
Champion Gravity Locking, No. 75.....75&7½%
Steamboat Gravity Locking, No. 10. 5&7½%
Pioneer, Nos. 660, 45 & 5½.....75&7½%
Empire, Nos. 101 & 103.....70&7½%
W. H. Co.'s Mortise Gravity Locking, No. 2.....60&10%
Stanley's Steel Gravity Blind Hinges, ¥ doz. sets $1.30.....90&10%

Gate Hinges—
Clark's or Shepard's—Doz. sets:

No.	1	2	3
Hinges with Latches	$1.90	2.50	3.85
Hinges only	1.30	1.90	2.90
Latches only	0.65	0.65	0.95

New England:
With Latch.....doz. ....@$1.55
Without Latch....doz. ....@$1.25
Reversible Self-Closing:
With Latch.....doz. ....@$1.80
Without Latch.....doz. ....@$1.45
Western:
With Latch.....doz. $1.40@1.75
Without Latch.....doz. $0.95@1.20
Wrightsville H'dware Co.:
Shepard's or Clark's, Nos. 1 & 2..65&2½%
Shepard's or Clark's, No. 3 .....55&5%

Spring Hinges—
Holdback, Cast Iron, gro. $8.00@9.25
Non-Holdback, Cast Iron..... gro. $6.75@7.25
J. Bardsley
Bardsley's Patent Checking.....15%
Bommer Bros.:
Bommer's.....33⅓%
Chicago Spring Butt Co.:
Chicago.....20%
Floor Hinge.....40%
Garden City Engine House..20%
Keene's Saloon Door.....20%
Triple End.....40%
Hoffman Hinge & Foundry Co.:
No. 70 & 80 Holdback Detachable $8.50
Lawson Mfg. Co.:
Machine.....30%
Matchless Pivot.....35%
Payson Mfg. Co.:
Oblique.....50&10%
Strover Mfg. Co.:
Ideal, No. 16, Detachable, ¥ gr. $12.50
Ideal, No. 4.....¥ gr. $9.00
New Idea No. 1.....¥ gr. $9.00
New Idea, Double Acting.....45%
Van Wagoner & Williams Hdw. Co.:
Acme, Wrt. Steel.....30%
Acme, Brass.....20%
American.....30%
Columbia, No. 14.....¥ gr. $9.00
Columbia, No. 18.....¥ gr. $25.00
Columbia, Adjustable.....30%
Gem new list.....25%
Clover Leaf.....¥ gr. $12.50
Oxford new list.....25%

Extra 10% off in given on most of these Hinges.

Wrought Iron Hinges—
Strap and T Hinges. &c., list Mar. 15, 1898:
Light Strap Hinges..66⅔%
Heavy Strap Hinges..70%
Light T Hinges...50&10%
Heavy T Hinges...60&10%
Extra Heavy T Hinges... 66⅔% } Extra 25&10@ 25&10¢
Hinge Hasps.....45
Cor. Heavy Strap.....70%
Cor. Ex. Heavy T.....66⅔% } 5%
Screw Hook and Strap. { 6 to 12 in...lb 2¾@3 c; 14 to 20 in...lb. 2¼@2¾c; 22 to 36 in...lb. 2¼@2½c
Screw Hook and Eye:
¾ to 1 inch.....lb. 5¾@6 c
⅝-inch.....lb 6¼@7 c
⅞-inch.....lb. 8¾@9 c

Miscellaneous—
Hoffman's Steel Spring Butt Hinges.....40&10%
Hoffman's Offset Refrigerator Hinges.....40&10%

Hods, Coal—

	15	16	17	18 inch.
Galv. Open	$2 05	2.20	2.45	2 65 ¥ doz.
Jap. Open	$1.55	1.70	1.85	2.05 ¥ doz.
Galv. Funnel	$2.75	2.90	3.10	3.45 ¥ doz.
Jap. Funnel	$2.00	2 15	2.35	2.70 ¥ doz.

Hoes—Eye—
Scovil and Oval Pattern..... 60¢&5@60¢10¢&5%
Grub, list Feb. 23, 1899. 70¢&5@70¢10%
D. & H. Scovil 35%

Handled—
Sept. 1, 1900, List:
Field and Garden.....75¢&2½%
Ladies', Boys', Toy and Onion... 70¢10¢10%
Street and Mortar.....75¢7½¢2½%
Cotton.....70¢10¢10¢5¢2½%
Planters'.....70¢30%
Weeding.....70%
Note.—Manufacturers and jobbers use a diversity of lists, and often sell at net prices.
Ft. Madison Crucible Garden Hoe..... 75&2½%
Ft. Madison Crescent Cultivator Hoe, per doz.....75&10&2½%
Ft. Madison Mattock Hoes:
Regular Weight.....¥ doz. $4.50
Junior Size.....¥ doz. $4.00
Ft. Madison Sprouting Hoe, ¥ doz. $4.80
Ft. Madison Dixie Tobacco Hoe..75&20%
Kretsinger's Cut Easy, per doz....75&2%
Warren Hoe.....60%
W. & C. Ivanhoe.....75&2%
B. B. Cultivator Hoe.....75&10%
Acme Weeding.....75&10%
W. & C. Lightning Shuffle Hoe, ¥ doz. $5.50

Hog Rings and Ringers—
See *Rings and Ringers.*

Hoisting Apparatus—
See *Machines, Hoisting.*

Hollow Ware—
See *Ware, Hollow.*

Holders—Bit—
Angular, ¥ doz. $24.00.....45&10%

Door—
Empire.....50%

File and Tool—
C. B. Jennings & Co.'s Model Tool Holders.....33⅓%
Nicholson File Holders and File Handles.....33⅓%

Hooks—Cast Iron—
Bird Cage, Reading..... } .50&10@60%
Bird Cage, Sargent's List..... }
Clothes Line, Hoffman's.....40&10%
Clothes Line, Sargent's List50&10&5&10%
Ceiling, Sargent's List.....40&10%
Clothes Line, Stowell's.....70%
Clothes Line, Reading List 65&10@65&10&10%
Coat and Hat, Stowell's.....70%
Coat and Hat, Reading.....70@75%
Coat and Hat, Sargent's List.....45&10%
Coat and Hat, Wrightsville .....65&10%
Harness, Reading List.....70&10@75%

Wire—
Belt.....80%
Atlas, Coat and Hat:
Single Cases.....45%
10 Case Lots.....45&10%
Czar Harness.....50&10&5%
Wire Coat and Hat:
Acme.....50&10&5%
B. B.....50&10&5%
V Brace, Chief and Czar.....50&10&5%
Gem.....60%
Bright Wire Goods—See *Wire.*

Wrought Iron—
Box, 6 in., per doz. $1.50; 8 in., $1.75; 10 in., $2.00.
Cotton.....doz. $1.05@1.25
Wrought Staples, Hooks, &c.—See *Wrought Goods.*

Miscellaneous—
Bush, Light, doz. $5.50; Medium, $6.00; Heavy, $6.50
Grass.....Nos. 1 2 3 4
Best.....$1.50 1.75 2.00
Common.....$1.40 1.40 1.50 1.75
Potato and Manure.....70%
Whiffletrees.....lb. 4¾c
Hooks and Eyes:
Brass.....60¢10¢10@70%
Malleable Iron.....70¢5@70¢10%
Covert Saddlery Works' Self Locking Gate and Door Hook..... 60&10%
Crown Picture.....50&10%
Bench Hooks—See *Bench Stops.*
Corn Hooks—*See Knives, Corn.*

Horse Nails—See *Nails, Horse*

Horseshoes—
See *Shoes, Horse.*

Hose Rubber—
Garden Hose, ¾-inch:
Competition.....ft. 4¼@ 4¾c
3-ply Standard.....ft. 5 @ 6 c
4-ply Standard.....ft. 8 @ 9 c
3-ply extra.....ft. 9 @10 c
4-ply extra.....ft 11 @12 c
Cotton Garden, ¾-in., coupled:
Low Grade.....ft. 6 @7 c
Fair quality.....ft. 8 @9 c

Irons—Sad—
From 4 to 10.....lb 3@3½c
B. B. Sad Irons.....lb. 3½@4c
Chinese Laundry.....lb. 5@5½c
Chinese Sad.....lb. 3½@3¾c
Mrs. Potts', per set:

Nos.	50	55	60	65
	67@72c	64@69c	77@82c	74@79c

New England Pressing.lb.. 3½@3¾c

Soldering—
Soldering Coppers. 1 & 1½ lb., 21 @ 23c.; 2 lb., 19 @ 21c
Covert Mfg. Co.....20&2%

Pinking—
Pinking Irons.....doz. 50@60c

Jack Screws—See *Screws.*

Jacks, Wagon—
Covert Mfg. Co., Steel.....45&2%
Daisy.....70%
Lockport.....40@40&10%
Victor.....60%
Lane's Steel.....33⅓&5%

Kettles—
Brass, Spun, Plain.....20@25%
Enameled and Cast Iron—See *Ware, Hollow.*

Knife Sharpeners—
See *Sharpeners, Knife.*

Knives—
Butcher, Shoe, &c.—
Dick's Butcher Knives.....40%
Foster Bros.' Butcher, &c.....80%
Hay and Straw—See *Hay Knives.*

Corn—
Ft. Madison Cut-Easy, ¥ doz.....$3.25
Withington Acme, ¥ doz., $2.65; Dent, $2.75; Adj. Serrated, $2.20; Serrated, $2.10; Yankee No. 1, $1.50; Yankee No. 3, $1.15.

Drawing—
Standard List.....70&5@70¢10%
Adjustable Handle.....25@33⅓%
Bradley's.....35%
C. E. Jennings & Co. Nos. 45, 46..40&10%
Jennings & Griffin.....66⅔&5%
Swan's.....70&10&2½%
Watrous.....30&10@40%
L. & L. J. White.....20&5@25%
Cantelo's Folding.....50@50&5%

Hay and Straw—
Lightning Pattern....per doz. $6.00 @6.25
Iwan's Sickle Edge..... ¥ doz. $10.00
Iwan's Serrated..... ¥ doz., $10.50
Lightning.....$7.50
Maine.....¥ doz. $8.50

Mincing—
Buffalo.....¥ gro. $15.00

Miscellaneous—
Farriers'.....doz. $2 00@3.00
Wrenholm's.....¥ doz. $3.00@3.25

Knobs—
Base, 2¼-inch, Birch, or Maple, Rubber tip, gro.....$1.20@1.30
Carriage, Jap, all sizes..gro. 30@35c
Door, Mineral.....doz. 60@65c
Door, Por. Japed.....doz. 70@75c
Door, Por. Nickel....doz. $2 00@2.10
Bardsley's Wood Door, Shutter, &c..15%
Picture, Sargent's.....60&10%
Snow's Victor.....50&10%

Ladders, Step—
Handy Ladder Works:

Extended Length. Feet.	Shipped Length. Feet.	Shipped Ready for Use	K. D. Per doz.	Per doz.
4	7	$16.00	$14.00	
5	9	19.50	17.00	
6	11	24 50	21.00	
7	13	29.50	25.00	
8	15	34.00	29.00	
9	17	39.00	32.00	
10	19	43.00	35 00	
11	21	46.50	40.00	
12	23	51.00	45.00	

Ladies— Melting—
L. & G. Mfg. Co. 60%
P., S. & W. ..... 40@40&10%
Reading ..... 50&10%
Sargent's ..... 40@40&10%

Lanterns— Tubular—
Regular Tubular ..... *doz. $4.50@5.60*
Side Lift Tubular ..... *doz. $4.75@5.25*
Square Lift Tubular ..... *doz. $4.75@5.25*
Other Styles ..... *40&10@40&10&5%*

Bull's Eye Police—
No. 1, 2¾ inch *$3.60*
No. 2, 3 inch *$4.00*

Latches, Thumb—
Roggin's Latches ..... *doz. 32@33c*

Lawn Mowers—
See *Mowers, Lawn.*

Leaders, Cattle—
Small ..... *doz. 50c; large, 55c*
Covert Mfg. Co. ..... 45&2%

Lemon Squeezers—
See *Squeezers, Lemon.*

Lifters, Transom—
Solid Grip, Payson Mfg. Co. 80%
R. & E. 45%

Lines—
Wire Clothes, Nos...	*18*	*19*	*20*
100 feet	*$2.20*	*2.00*	*1.65*
75 feet	*$1.80*	*1.70*	*1.30*

Ocsawan Mills,
Crown Solid Braided Chalk 33⅓%
Mason's, No. 0 to No. 5 ..... 33⅓%
Samson Cordage Works:
Solid Braided Chalk, No. 0 to 3 ..... 40%
Silver Lake Braided Chalk, No. 0, $6.00; No. 1, $6.50; No. 2, $7.00; No. 3, $7.50 ₱ gr. 30%

Locks—
Cabinet—
Cabinet Locks ..... *33⅓@33⅓&7½%*

Door Locks, Latches, &c.—
[Net prices are very often made on these goods.]
Reading Hardware Co. 40%
R. & E. Mfg. Co. 20%
Sargent & Co. ..... 40@40&10%
Snow's Victor ..... 50&10%

Elevator—
Stowell's 33⅓%

Padlocks—
Wrought Iron ..... *75&10@80%*
R. & E. Mfg. Co. Wrt Steel and Brass. 50%

Sash, &c.—
Fitch's Bronze and Brass 66⅔%
Fitch's Iron 70%
Ives' Patent ..... 55&5@65%
Payson's Signal 80%
Reading ..... 60&10&10@70%

Machines—
Boring—
Without Augers.

	Upright.	Angular.
Improved No. 3	$4.25	No. 1 $5.00
Improved No. 4	3.75	No. 2 3.38
Improved No. 5	2.75	
Jennings'	2.50	3.00
Millers' Falls		5.75
Snell's, Rice's Pat.	2.50	2.75
Swan's, No. 500	5.10	No. 200 6.45

Hoisting—
Moore's Anti-Friction Differential Pulley Block 30%
Moore's Hand Hoist, with Lock Brake. 20%

Ice Cutting—
Chandler's 15%

Washing—
Wayne American, ₱ doz. $28.00
Western Star, No. 2, ₱ doz. 28.00
Western Star, No. 3, ₱ doz. 30.00
St. Louis, No. 41, ₱ doz. 60.00
} Carload lots 10% off, freight allowed.

Mallets—
Hickory ..... *45&5@50&5%*
Lignumvitæ ..... *45&5@50&5%*
Tinners', Hickory and Applewood, doz. ..... *50@55c*

Mats—
Door—
Elastic Steel (W. G. Co.) 10%

Mattocks—
See *Picks and Mattocks.*

Meat Cutters—
See *Cutters, Meat.*

Milk Cans—See *Cans, Milk*

Mills— Coffee—
Enterprise Mfg. Co. ..... 25@30%
National, list Jan. 1, '94 ..... 30%
Parker's Columbia and Victor ..... 50&10@50%
Parker's Box and Side ..... 50&10@60%
Swift, Lane Bros. 30%

Mincing Knives—
See *Knives, Mincing.*

Molasses Gates—
See *Gates, Molasses.*

Money Drawers—
See *Drawers, Money.*

Mowers, Lawn—
Net prices are generally quoted.
Cheap ..... *all sizes, $2.00@2.10*
Good ..... *all sizes, $2.50@2.75*

	10	12	14	16-inch
High Grade	4.25	4.50	4.75	5 00

Pennsylvania and Continental. 60&10&5%
Quaker City ..... 70&5%
Great American ..... 70&5%
Philadelphia:
Styles M., S., C., K., T. ..... 70&5%
Style A, all Steel ..... 60&10%
Style E, Low Wheel ..... 60&10%
Style E, High Wheel ..... 70&10&5%
Drexel and Gold Coin, low list ... 50&5%

Nails—
Cut and Wire. See Trade Report.
Wire Nails and Brads, Papered. List July 20, 1899 ..... *85@85&10%*
Hungarian, Finishing, Upholsterers', &c. See Tacks

Horse—

Nos.	6	7	8	9	10	
A. C.	25¢	23¢	22¢	21¢	21¢	40&5%
Ausable	28¢	26¢	25¢	24¢	23¢	50&10%
Capewell	19¢	18¢	17¢	16¢	16¢	10&5%
C. B. K.	25¢	25¢	22¢	21¢	21¢	40%
Champ'in	28¢	26¢	25¢	24¢	23¢	40&5&2%
Clinton	19¢	17¢	16¢	15¢	14¢	30&10&5%
Maud S.	25¢	23¢	22¢	21¢	21¢	50%
Nenonset	23¢	21¢	20¢	19¢	18¢	40%
Putnam	23¢	21¢	20¢	19¢	18¢	33⅓%
Vulcan	23¢	21¢	20¢	19¢	18¢	25&10%
Amer.can, Nos.						10@9½¢

Picture

	1½	2	2½	3	3½ in.
Brass Head	.55	.60	.70	.95	1.00 gro.
Por. Head	..	1.10	1.10	1.10	.. gro.

Nippers, See *Pliers and Nippers.*

Nut Crackers—
See *Crackers, Nut.*

Nuts—
List Feb. 1, '99.
Cold Punched ..... *Off*
Mfrs. or U. S. Standard. ..... *list.*
Hexagon, plain ..... *5.80@5.90c*
Square, plain ..... *5.40@5.50c*
Square, C. T. & R. ..... *5 60@5.70c*
Hexagon, C. T. & R. ..... *6.40@6.50c*
Hot Pressed:
Mfrs., U. S. or Nar. Gauge Stan'd.
Square Blank or Tapped ..... *5.80@5 90c*
Hexagon Blank or Tap'd ..... *6.00@6.00c*

Oakum—
Best or Government ..... *lb. 6¼c*
Navy ..... *lb. 5 c*
U. S. Navy ..... *lb. 5¼c*
Plumbers' Spun Navy *8¾c*
In carload lots ¼c lb. off f.o b. New York.

Oil, Axle—
Snow Flake:
1 pt. cans, per doz. $3.00
1 qt. cans, per doz. $4.80
1 gal. cans, per doz. $15 00
5 gal. cans, per doz. $66.00
} 33⅓&10%

Oil Tanks—See *Tanks, Oil.*

Oilers—
Brass and Copper ..... *40&10@50%*
Tin or Steel ..... *60&10@65%*
Zinc ..... *60&10@65%*
Malleable, Hammers' Improved, No. 1, $3.60; No. 2, $4; No. 3, $4.40 ₱ doz. 20%
Malleable, Hammers' Old Pattern, same list ..... 50&10%
Wilmot & Hobbs Mfg. Co:
Spring Bottom Cans ..... 70@70&10%
Railroad Oilers etc, ... 60@60&10%

Oponers—
Can—
French ..... *doz. 35c*
Iron Handle ..... *doz. 25@27c*
Sprague, Iron Hdle ..... *per doz 35@40c*
Sardine Scissors ..... *doz. $1.75@$3.00*
Tip Top ..... per doz. $0.75
National, ₱ gro. ..... $1.75@$2.00
Stowell's ..... per doz. 40@45c
Waldorf, ₱ gro. $9.00

Egg—
Nickel Plate ..... per doz., $2.00
Silver Plate ..... per doz., $4.00

Packing—
Rubber—
Standard, fair quality ..... *70&10@75%*
Inferior quality ..... *75&10@80%*
Extra ..... *60&5@60&10&5%*
Jenkins' Standard, ₱ ℔ 80¢ ..... 25@25&5%

Miscellaneous—
American Packing ..... *9@10c lb.*
Cotton Packing ..... *13@14c lb.*
Italian Packing ..... *10½@11¼c lb.*
Jute ..... *3½@5c lb.*
Russia Packing ..... *12@13c lb.*

Pails—
Creamery—
S. S. & Co., with gauges.. No 1 $6.50; No. 2, $5.75 ₱ doz.

Galvanized—
Price per gro.

Inch	*10*	*12*	*14*
Water, Regular	*18 00*	*21.00*	*24.00*
Water, Heavy	*22.00*	*25.00*	*28.00*
Fire, Rd. Bottom	*31.00*	*33.00*	*35.00*
Well	*27.00*	*29.00*	*31.00*

Pans—
Dripping—
Standard List ..... *65&10@65%*

Fry—
Common Lipped:

No.	*1*	*2*	*3*	*4*	*5*
Per doz.	*$0.60*	*.75*	*.85*	*.95*	*1.15*

Roasting and Baking—
Regal, S. S. & Co., ₱ doz., Nos. 5, $4.50; 10 $5.00; 20 $5.50; 30, $6.00
Simplex, ₱ gro., No. 40 $30.00; 50, $34.50; 60 $39 00; 140, $33.00; 150, $37 50; 160, $43.00.

Paper—
Building Paper—

	Per roll
Rosin Sized Sheathing:	*500 sq. ft.*
Light wt., 20 sq. ft. to lb	*$0 40@0.45*
Medium wt., 12 sq. ft. to lb	*$0.60@0.65*
Heavy wt., extra quality	*$0.95@1.05*
Medium Grades Water Proof Sheathing	*$0.80@1.25*
Deafening Felt, 9, 6 and 4½ sq. ft. to lb., ton	*$40.00*
York Haven Waterproof Sheathing	$1 35@1.75

Tarred Paper.
1 ply (roll 200 sq. ft.), ton *$28.00*
2 ply, roll 100 sq. ft ..... *50@55c*
3 ply, roll 100 sq. ft ..... *75@80c*

Sand and Emery—
List Dec. 23, 1899 ..... *50&10@50&10&10%*

Parers—
Apple—
Advance ..... ₱ doz. $4.50
Baldwin ..... ₱ doz. $5.00
Bonanza ..... each $5.00
Dandy ..... each $7.50
Eureka, 1898 ..... each $16.00
Family Bay State ..... ₱ doz. $12.00
Hudson's Little Star ..... ₱ doz. $4.00
Hudson's Rocking Table ..... ₱ doz $3.50
Improved Bay State ₱ doz. $27.00@30.00
New Lightning ..... ₱ doz. $5.50
Reading '79 ..... ₱ doz. $4.00
Reading '98 ..... ₱ doz. $7.00
Turn Table '98 ..... ₱ doz. $5.50
White Mountain ..... ₱ doz. $4.00

Potato—
Saratoga ..... ₱ doz. $5.50
White Mountain ..... ₱ doz. $4.50

Paris Green— *per lb.*
In Arsenic, kegs or casks *12½c*
In kegs, 100 to 175 lbs. ..... *13 c*
In kits, 14, 28, 56 lbs. ..... *14 c*
In paper boxes, 2 to 5 lbs. ..... *14 c*
In paper boxes, 1 lb. *14½c*
In paper boxes, ½ lb *15½c*
In paper boxes, ¼ lb *16½c*

Picks and Mattocks—
List Feb. 23, 1899 ..... *75@75&10%*

Pinking Irons—
See *Irons, Pinking.*

Pins—
Escutcheon—
Brass ..... *60&10%*
Iron, list Nov. 11, '85 ..... *60&10%*

Pipe, Cast Iron Soil—
Factory Shipments.
Standard, 2-6 in ..... *70@70&5%*
Extra Heavy, 2-6 in ..... *75@75&5%*
Fittings ..... *75&10&5@80%*

NOTE.—*Freight allowances on Carload lots.*

Pipe, Merchant, Boiler Tubes, &c.—
Carloads to Consumers.
Merchant Pipe.

	Black.	*Galvanized.*
⅛ to ⅜ inch	*61%*	*43%*
¼ to 10 inch	*68½%*	*56%*

Boiler Tubes.

Steel.	*Up to 22 feet.*	*22 feet and over.*
1 to 1½ inch and 2¼ in.	*49½%*	*44½%*
1¾ to 2¼ inch	*45%*	*39½%*
2¾ to 13 inch	*57%*	*52½%*
Iron.		
1 to 1½ inch and 2¼ in.	*49½%*	*44½%*
1¾ to 2¼ inch	*45%*	*39½%*
2¾ to 13 inch	*57%*	*52½%*

Casing, Cut Lengths. *S. & S.*
2 to 3 inch *58%*
3¼ to 4 inch *63%*
4¼ to 12½ inch *65%*

NOTE.—*The old list is still used by some jobbers, and net prices are often quoted.*

Planes and Plane Irons—
Wood Planes—
Molding ..... *40&3½@40&10%*
Bench, First quality ..... *45&10@45&10&5%*
Bench, Second quality ..... *50&10@50&10&5%*
Bailey's (Stanley R. & L. Co) 50&10@50&10&10%
Gage Self Setting 35%

Iron Planes—
Bailey's (Stanley R. & L. Co) ..... 50&10@50&10&10%
Chaplin's Iron Planes ..... 50&10%
Miscellaneous Planes (Stanley R. & L. Co.) ..... 25&10@25&10&10%
Sargent's ..... 50&10&10%

Plane Irons—
Wood Bench Plane Irons ..... *30&5@30&10&5%*
Buck Bros. 30%
Butcher's ..... $5.00@5.25 to 2
Stanley R. & L. Co. ..... 50&10@50&10&10%
L. & L. J. White ..... 20&5@25%

Planters, Corn, Hand.
Kohler's Eclipse ..... ₱ doz. $0.00

Plates—
Felloe ..... *lb 3½@4c*
Self-Sealing Pie Plates (S. S. & Co.), ₱ doz. $2.00 ..... 30%

Pliers and Nippers—
Button Pliers ..... *70&10@75%*
Gas Burner, per doz., 5 in., $1.15@ $1.20; 6 in., $1.35@$1.45.
Gas Pipe .. 7 8 10 12-in.
$1.75 $2.00 $2.75 $3.75
Acme Nippers ..... 40@40&10%
Bernard's:
Parallel Pliers, &c. 25%
Paragon Pliers ..... 50&10%
Lodi Pliers ..... 50&10%
Elm City Fence Pliers 35%
Cronk Hanger Co.:
Cronk's 60%
Improved Button ..... 70&10%
Stub's 50%
Combination and others 25%
Heller's Farriers' Nippers, Pincers, and Tools 50&50&10%
Morrill's Parallel, ₱ doz. $12.00 ... 30&10%
P., S. & W. Cast Steel ..... 30&10@40%
P., S. & W. Tinners' Cutting Nippers 40@40&10%
Swedish Side, End and Diagonal Cutting Pliers 50%
Utica Drop Forge & Tool Co.:
Pliers and Nippers, all kinds 40%

Plumbs and Levels—
Plumbs and Levels ..... *70c&10@75c&10%*
Davis Iron, Machinist Nos. 1 to 14 ..... 20%
Davis Iron, Adjustable Nos. 6 to 40 ..... 35%
Disston's 70%
Pocket Levels ..... 75&10&10@75&10%
Stanley R. & L. Co. ..... 70&10@70&10&10%
Stanley's Duplex ..... 25&10@25&10&10%
Woods' Extension 33⅓%

Poachers, Egg—
Buffalo Steam Egg Poachers, ₱ doz., No. 1, $7.20; No. 2, $11.00 No. 3, $11.00; No. 4, $14.50 ..... 50%

Points, Glaziers'—
Bulk and 1 lb. papers .. *lb. 8½@ 9 c*
½-lb. papers ..... *lb. 9 @9½c*
¼-lb. papers ..... *lb. 10 @10½c*

Pokes, Animal—
Ft. Madison Hawkeye ..... ₱ doz. $3.25
Ft. Madison, Western ..... ₱ doz. $3.75

Police Goods—
Manufacturers' Lists ..... *25@25&5%*
Tower's 25%

Polish—Metal—
Prestoline Liquid, No. 1 (¼ pt.), ₱ doz. $3.00; No. 2 (1 qt.), $9.72 ..... 40%
Prestoline Paste ..... 33⅓&40%
U. S. Metal Polish Paste, 3 oz. boxes, ₱ doz. 50¢; ₱ gr. $4.50; ½ ℔ boxes, ₱ doz. $1.25; 1 ℔ boxes, ₱ doz. $2.25.
U. S. Liquid, 8 oz. cans, ₱ doz. $1.25; ₱ gr. $12.00.
Barkeepers' Friend Metal Polish, ₱ doz. $1.75; ₱ gr. $18.00.
Wynn's White Silk, ¼ pt. cans, ₱ doz. $1.50

Stove—
Black Eagle Benzine Paste, 5 ℔ cans ₱ ℔ 10¢
Black Eagle, Liquid, ½ pt. cans. ₱ doz. 75¢
Black Jack Paste, ¾ ℔ cans, ₱ gro. $9.00
Ladd's Black Beauty, gr. $10.00 ..... 50%
Joseph Dixon's, ₱ gr. $5.75 ..... 10%
Dixon's Plumbago ..... ₱ ℔ 8¢
Fireside ..... ₱ gr. $2.50
Gem, ₱ gr. $4.50 ..... 10%
Japanese ..... ₱ gr. $3.50
Jet Black ..... ₱ gr. $3.50
Peerless Iron Enamel, ½ pt. cans ₱ doz. $1.50
Wynn's Black Silk, 5 ℔ pail ..... each 70¢
Wynn's Black Silk, ½ ℔ box, ₱ doz. $1.00
Wynn's Black Silk, 5 oz. box, ₱ doz. $0.75
Wynn's Black Silk, ½ pt. liq., ₱ doz. $2.00

Poppers, Corn—
Round or Square:
1 qt ..... *gro. $7.00@$7.50*
1½ qt ..... *gro. 9 50@ 10 00*
2 qt ..... *gro. 10.50@ 11.00*

Post Hole and Tree Augers and Diggers—
See also *Diggers, Post Hole, &c.*

Potato Parers—
See *Parers, Potato.*

Pots—
Glue—
Enameled ..... *40¢&10@50%*
Tinned ..... *40@45%*

Powder—
In Canisters:
Duck, 1 lb. each *45c*
Fine Sporting, 1 lb. each *75c*
Rifle, ½-lb. each *15c*
Rifle, 1-lb. each *25c*
In Kegs:
Duck, 6½-lb. kegs *$2.25*
Duck, 12½-lb. kegs *$4.25*
Duck, 25-lb kegs *$8.00*
Rifle, 6½-lb. kegs *$1.25*
Rifle, 12½-lbkegs *$2 25*
Rifle, 25-lb. kegs *$4.00*
King's Smokeless Shot Gun and Rifle:
Keg (25 ℔ bulk) $22 00
Half Keg (12½ ℔ bulk) $11.25
Quarter Keg (6¼ ℔ bulk) $5.75
Canister (1 ℔ bulk) $1.00
} 25&10&10%
King's Semi-Smokeless:
Keg (25 ℔ bulk) $10.00
Half Keg (12½ ℔ bulk) $5.25
Quarter Keg (6¼ ℔ bulk) $2.75
One Pound Can, bulk $0.50
} 20&10%

Presses—
Fruit and Jelly—
Enterprise Mfg. Co. ..... 20@25%

Pruning Hooks and Shears—See *Shears.*

Pullers, Nail—
Crown, ₱ doz. $18.00 ..... 50%
Crown Prince, ₱ doz. $15.00 ..... 50%
Cyclops ..... 40@40&10%
Diamond B, No. 2, doz. $24.; No. 3, $11 ..... 40%
Eureka, 5 ℔, doz., $16.00; 3 ℔ $15 ..... 40%
Giant, No. 1, ₱ doz. $18; No. 2, $16.50; No. 3, $15 ..... 40%
Miller's Falls, No. 3, ₱ doz. $12.00 ..... 15&10%
Pelican ₱ doz. $9.00 ..... 40&10%
Scranton, No. 1 and 2, ₱ doz. ..... 40&10%
Scranton, No. 3, ₱ doz. $8.50

Pulleys—

Hay Fork, Swivel or Solid Eye..... doz. $1.25@1.50

Hay Fork, Stowell's Anti-Friction, 5-in. Wheel, ₩ doz. $12.00..... 40%

Hot House, Awning, &c.....60@60&10%

Japanned Clothes Line.....60@60&10%

Japanned Screw.....70&10&10%

Japanned Side.....70&10&10%

Stowell's Ceiling or End, Anti-Friction 60%

Stowell's Dumb Waiter, Anti-Friction .. 60&10%

Stowell's Electric Light..... .....60%

Stowell's Side, Anti-Friction.....60&10%

Sash Pulleys—

Acme.....1¼ in., 16¢; 2 in., 19¢

Common Sense, 1¼ in.... ₩ doz., 18¢; 2 in., 20¢.

Fox-All-Steel, Nos. 3 and 7, 2¼ in..... ₩ doz. 25¢

No. 9, 1¾ in..... ₩ doz. 20¢

Extra for Plated Finish....₩ doz. 20¢

Extra for Anti-Friction Bronze Bushing..... ₩ doz 10¢

Grand Rapids All Steel Noiseless.... 40%

Ideal No. 13.....1¼ in., ₩ doz., 20¢

Niagara.....1¾ in., 16¢; 2 in., 19¢

No. 30, Troy....1¾ in., 14½¢; 2 in., 16½¢

Star.....1¾ in., 16¢; 2 in., 19¢

Tackle Blocks—See *Blocks*.

Pumps—

Cistern.....60@60&10%

Pitcher Spout..... 75&5@75&10%

Pump Leathers, all sizes.....*gro. $6.00*

Barnes Dbl. Acting (low list).. 55%

Flint & Walling's Fast Mail...55@55&10%

Flint & Walling's Pitcher Spout.....75&5%

Loud's Suction Pumps, U. S. Co.....20%

Myer's Pumps, low list.....50%

Contractors' Rubber Diaphragm Non-chokable, B. & L. Block Co.....20%

Punches—

Revolving (4 tubes)...*doz. $3.75@4.00*

Saddlers' or Drive, good...doz. 65@70c

Spring, good quality.....$1.65@1.75

Bemis & Call Co.'s Cast Steel Drive....50%

Bemis & Call Co.'s Check.....55%

Bemis & Call Co.'s Spring.....50%

Niagara Hollow Punches.....45%

Niagara Solid Punches.....55%

Steel Screw, B. & K. Mfg. Co.....40%

Tinners' Hollow, P., S. & W. Co..... 35@35&5%

Tinners' Solid, P., S. & W. Co., ₩ doz., $1.44..... 55%

Rail— Barn Door, &c.—

	In. ⅛	¼	¾
Barn Door, Light.. *100 feet*.....	$2.00	$2.50	$5.00
B. D., for N. E. Hangers:	*Small.*	*Med.*	*Large.*
100 feet.....	$2 20	2.70	3.20

Sliding Door, Bronzed Wr't Iron, ft. 6½c

Sliding Door, Iron Painted....2½@3c

Sliding Door, Wrought Brass, 1¼ in...... *lb.* 36c..30%

Cronk's Double Braced Steel Rail, ₩ foot..... 3½¢

Cronk's O. N. T. Rail..... 3½¢

Lanes' O. N. T., ₩ 100 ft., 1 inch...$2.65

Lanes' Standard, ₩ 100 ft.... .....3.75

Lawrence Bros.' ..... ₩ ft. 4½¢

McKinney's None Better..... ₩ ft. 3¢

McKinney's Standard..... ₩ ft. 3½¢

Moore's Wr't. Bracket, Steel.....3½¢

Stowell's Steel Rail, Plain .....3½¢

Rakes—

Net Prices, Malleable Rakes:

	10	*12*	*14*	*16-tooth*
Shank.....	$1.50	1.60	1.75	1.85
Socket....	$1.65	1.80	1.95	2.10

Sept. 1, 1900, List:

Cast Steel..... 70¢&5¢&2%

Malleable..... 70¢&10¢&75¢&5%

Lawn Rakes, Metal Head, per doz., 20 teeth, $3 60; 24 teeth, $3 75.

Fort Madison Red Head Lawn. $3 25

Fort Madison Blue Head Lawn.....$3.00

Jackson Lawn, 20 and 30 teeth..... ₩ doz. $4.50

Kohler's Lawn Queen, 24-tooth, ₩ doz. $4.00

Kohler's Paragon, 24-tooth, ₩ doz. $3.00

Kohler's Steel Garden, 14-tooth, ₩ doz. $3.50

Kohler's Malleable Garden, 14-tooth, ₩ doz..... $2.50

Rasps, Horse—

Disston's.....75%

Heller Bros.....60&10&10%

McCaffrey File Co. Horse Rasps..... 60&10&5%

New Nicholson Horse Rasp.....70&10% See also *Files*.

Razors—

Fox Razors, No. 42...₩ doz. $20.00 } 30%

Fox Razors, No 44,...₩ doz. $24.00 } 30%

Fox Razors, No. 82, Platina, ₩ doz $24.00 } 30%

Sterling Razor Works..... .....50%

Razor Strops—

See *Strops, Razor*.

Reels— Fishing—

Hendryx Aluminum, German Silver, Gold, Bronze, Silver, Rubber, Populo and Salmon, Single Action, Multiplying and Quadruple, all sizes..... 25%

Hendryx Single Action Series, 102P and PN, 202P and PN, 102 PR and PRN, 202 PR and PRN, 304 P and PN, 00304P and PN, 502 and 502N, 802 and 802N, 02084N, Competitor.50%

Hendryx Multiplying and Quadruple Series, 3004N and PN, 4N and PN, 2904N, 2904P and PN, 002904PN, 0924 and 0924N, 5009N and PN.....40&10%

Shakespeare, Style C..... .....25%

Registers—

Black Jap..... 60%

White Jap..... 40%

Bronzed..... 40%

Nickel Plated..... 60%

Electro Plated..... 40%

Riddles, Grain or Sand—

16 in. per doz.....*$2.00@$2.25*

17 in. per doz.....*$2.25@$2.50*

in. per doz.....*$2.50@$2.75*

Rings and Ringers—

Bull Rings—

	2	*2½*	*3 Inch.*
Steel.....	$0.80	0.90	0.95 doz.
Copper.....	1.10	1.30	1.50 doz.

Hog Rings and Ringers—

Hill's Rings....*gro. boxes, $4.50@4.75*

Hill's Ringers, Gray Iron doz. 55@60c

Hill's Ringers, Mal. Iron, per doz 75@80c

Blair's Rings.....*per gro. $5.75@6.00*

Blair's Ringers...*per doz. $0.90@1.00*

Brown's Rings....*per gro. $6.00@6.25*

Brown's Ringers..*per doz. $1.00@1.10*

Rapid Rings..... ₩ gro. $6.00

Rapid Ringers..... ₩ doz. $3.50

Rivets and Burrs—

Copper..... .....50@50&5%

Iron or Steel:

Tinners' .....70¢&10@75%

Miscellaneous ....70¢&10@75%

Rivet Sets—See *Sets*.

Roasting and Baking Pans—See *Pans, Roasting and Baking*.

Rollers—

Acme, Stowell's Anti-Friction 50%

Barn Door, Sargent's list.....50&10&10%

Cronk's Stay..... .....66⅔%

Cronk's Brinkerhoff..... .....66⅔%

Lane's, Stay 33⅓%

Stowell's Barn Door Stay...₩ doz. $1.25

Rope—

Manila, 7-16 in. and larger. lb. 9¾@10 c

Manila.....*¾-inch lb.* 10¾@10½c

Manila..*¼ and 5-16 in. lb.* 10¾@11 c

Manila, Tarred Rope, 15 thread..... *lb* 9¾@ 10 c

Manila Hay Rope Med'm.lb 9¾@ 10 c

Sisal, 7-16 in. and larger..lb. 7¼@ 7½c

Sisal.....*⅜-inch. lb.* 7¾@ 8 c

Sisal.....*¼ and 5-16 in. lb.* 8¾@ 8½c

Sisal, Hay Rope, 2 to 10 ply..... *lb.* 7½@ 7¾c

Sisal, Tarred, Medium Lath Yarn..... *lb.* 6¾@ 7 c

Cotton Rope:

Best, ¼-in. and larger..lb... @14 c

Med'm, ¼-in. and larger lb... @11½c

Com., ¼-in. and larger.lb... @ 9 c

Jute Rope, No. 1, ¼ in. and up..... *lb...* @ 6½c

Jute Rope, No. 2, ¼ in. and up..... *lb* .. @ 6 c

Wire Rope—

Galvanized .....25¢&10¢&2%

Plain..... 30¢&10¢&2%

Ropes, Hammock—

Covert Mfg. Co..... .....45&2%

Covert Saddlery Works..... .....60%

Rules—

Boxwood..*75¢&10¢&10¢&10¢&10@75¢&10 ¢&10¢&10¢&10¢&5%*

Ivory....*40¢&10¢&10@40¢&10¢&10¢&10¢&10%*

Lufkin's Steel..... .....50&10%

Lufkin's Lumber ... .50&10%

Stanley R. & L. Co.:

Boxwood...75&10&10@75&10&10&10%

Ivory..... .....35&10@35&10&10%

Sad Irons—See *Irons, Sad*.

Sand and Emery Paper and Cloth—See *Paper and Cloth*.

Sash Cords—See *Cord, Sash*.

Sash Locks—See *Locks, Sash*.

Sash Weights—See *Weights, Sash*.

Sausage Stuffers or Fillers—See *Stuffers or Fillers, Sausage*.

Saw Frames—See *Frames, Saw*.

Saw Sets—See *Sets, Saw*.

Saw Tools—See *Tools, Saw*.

Saws—

Atkins' Circular..... .....50@50&10%

Atkins' Band .....50&10@60%

Atkins' Cross Cuts .....35&5%

Atkins' Mulay, Mill and Drag.....50&10%

Atkins' One-Man Saw..... .....40%

Atkins' Wood Saws 40%

Atkins' Hand, Compass, &c..... ... 40%

Disston's Circular Solid and Inserted Tooth..... .....50%

Disston Band 2 to 14 in. wide.....60%

Disston Band ¼ to 1¼..... .....70%

Disston Crosscuts..... .....45@45&10%

Disston Narrow Crosscuts....50@50&10%

Disston Mulay, Mill and Drag..... 50%

Disston Framed Woodsaws..35@35&7½%

Disston Woodsaw Blades....40@40&7½%

Disston Woodsaw Rods..... .....25%

Disston Handsaws, Nos. 12, 99, 9, 16, d100, D8, 120, 76, 77, d.....25@25&7½%

Disston Hand Saws, Nos. 7, 107, 107½, 3, 1, 0, 00, Combination... 30@30&7½%

Disston Compass Keyhole, &c.25@25&7½%

Disston Butcher Saws and Blades..... 35@35&7½%

C. E. Jennings & Co.'s.:

Back Saws..... .....25%

Butcher Saws..... .....35%

Compass and Key Hole Saws.....25%

Framed Wood Saws..... .....40%

Hand Saws..... .....25@30%

Wood Saw Blades..... .....45%

Peace Circular and Mill..... .....50%

Peace Cross Cuts, list Jan. 1, '99.....50%

Peace Hand, Panel and Rip..... .....30%

Richardson's Circular and Mill 50%

Richardson's X Cuts, list Jan. 1, '99..50%

Richardson's Hand, &c..... .....30%

Simonds' Circular Saws..... .....50%

Simonds' Crescent Ground Cross Cut Saws..... .....35%

Simonds' One-Man Cross Cuts....40&10%

Simonds' Gang Mill, Mulay and Drag Saws..... .....45@45&5%

Hack Saws—

Disston Concave Blades..... .....25%

Disston Keystone..... .....30%

Disston Hack Saw Frames..... .....30%

C. E. Jennings & Co's.:

Hack Saw Frames, Nos. 175, 180, 330..... .....40%

Hack Saws, Nos. 175, 180, 330, complete..... .....40%

Griffin's Hack Saw Frames 45%

Griffin's Hack Saw Blades..... .....45%

Star Hack Saws and Blades..... .....15&10%

Scroll—

Barnes' No. 7, $15..... .....25%

Barnes' Scroll Saw Blades..... .....40%

Barnes' Velocipede Power Scroll Saw, without boring attachment, $18: with boring attachment, $20..... 20%

Lester, complete, $10.00..... .....15&10%

Rogers, complete, $4.00..... .....15&10%

Scale Beams—See *Beams, Scale*.

Scales—

Family, Turnbull's..... ...*30@30&10%*

Hatch, Counter:

Platform, 4 lb. by ½ oz...doz. $5.75

Two Platforms, 8 lb. by ½ oz..... doz. $16.00

Union Platform, Plain....*$1.75@2.00*

Union Platform, Striped..*$1.85@2.15*

Chatillon's Eureka..... .....25%

Chatillon's Favorite..... .....40%

Chatillon's Grocers' Trip Scales..... 50%

Pelouze Scales—Household, Counter, Confectionery, Postal, Ice, &c.....50%

"The Standard" Portables 40%

"The Standard" R. R. and Wagon....50%

Scrapers—

Box, 1 Handle .....*doz $2.25@2.75*

Box, 2 Handle.....*doz. $3.75@4.00*

Ship, No. 1, doz. $3.50; No. 2, $2.25@2.40

Adjustable Box Scraper (S. R. & L. Co.) $8.00..... .....30&10%

Screens, Window and Frames—

Bonanza Window Screens....60@60&5%

Flyer Pattern Window Screen.60@60&5%

Maine Window Screen Frames.40&10&5%

Perfection Window Screens.....60@60&5%

Phillips' Window Screen Frames..... 60&10&5%

Porter's Extension Window Screens.. 50&10%

Wabash Spring Adj. Screen. 50%

Screw Drivers—See *Drivers, Screw*.

Screws—

Bench and Hand—

Bench, Iron..doz. 1 in., $3.00@3.25; 1¼, $3.50@3.75; 1¼, $4.00@4.50

Bench, Wood, Beech..doz. $3.50@3.75

Hand, Wood..... .....*30¢&10@40%*

Hand, R. Bliss Mfg Co..... .....35%

Coach, Lag and Hand Rail—

Lag, Common Point, list Oct. 1, '99..... .....*80@...%*

Coach and Lag, Gimlet Point, list Oct. 1, '99..... .....*75¢&15@...%*

Hand Rail, list Jan. 1, '81.60¢&10@...%

Jack Screws—

Millers Falls..... .....50&10&10%

Millers Falls, Roller ....50&10%

P., S. & W..... .....40&5@40&10%

Sargent..... .....70&10%

Machine—

List Jan. 1, '98.

Flat or Round Head, Iron.50¢&10@60%

Flat or Round Head, Brass..... 50¢&10@60%

Set and Cap—

Set (Iron or Steel) .....70¢&10%

Sq. Hd. Cap..... .....*65¢&10%*

Hex. Hd. Cap..... .....*65¢&10%*

Wood—

List Jan. 1, 1900.

Flat Head, Iron.....90%

Round Head, Iron.....87½%

Flat Head, Brass.....87½%

Round Head, Brass.....85%

Flat Head, Bronze.....80%

Round Head, Bronze....71½%

Drive Screws.....90%

} *Manufacturers' base discounts.*

Scroll Saws—See *Saws, Scroll*.

Scythes—

Grass Scythes:

Natural Finish..per doz. $7.50@7 75

Fol. Blade.....*per doz. $8.00@8.15*

Painted or Bronzed..per doz. $8.00

Weed and Bush..per doz. $7.25@7.50

Scythe Snaths—See *Snaths, Scythe*.

Seeders—

Raisin—

Enterprise..... .....25@30%

Sets—

Awl and Tool—

Brad Awl and Tool Sets:

Wood Hdle., 10 Awls doz. $2.00@2.25

Wood Hdle., 14 Awls, 6 Tools..... doz. $3.50@3.60

Aiken's Sets, Awl and Tools:

No. 30, ₩ doz. $10.00.....50&10&10%

Fray's Adj. Tool H dls...Nos. 1, $12; 2, $18; 3, $12; 4, $9; 5, $7..... .....50%

Millers Falls Adj. Tool H'dls, No. 1, $12; No. 4, $12; No. 5, $18 .... 15&10%

Stanley's Excelsior:

No. 1, $7.50; No. 2 $4.00; No. 3, $5.50..... .....30&10@30&10&10%

Garden Tool Sets—

Ft. Madison Rakes, Shovel and Hoe.... ₩ doz.....$9.00

Nail—

Square.....*per gro. $2.50*

Round, Blk. and Pol., assorted..... gro. $1.80@2.50

Octagon.....*gro. $4.25@4.75*

Knurled. Good.....*gro. $5.00@5.50*

Buck Brothers..... .....27½%

Cannon's Diamond Point, ₩ gr. $12..25%

Snell's Corrugated, Cup Pt..... .....50%

Snell's Knurled, Cup Pt..... .....66⅔%

Rivet—

Regular list..... .....*70@70¢&10¢&5%*

Saw—

Aiken's Genuine..... ₩ doz. $5.50@6.00

Aiken's Imitation ..... ₩ doz. $3.00@3.10

Atkin's Criterion..... .....40%

Atkin's Adjustable..... .....40%

Bemis & Call Co.'s Cross Cut..... .30%

Bemis & Call Co.'s Plate..... .....20%

Bemis & Call Spring Hammer..... .30%

Disston's Star and Monarch..... .35%

Hammer, Bemis & Call Co.'s new Pat. 45%

Morrill's No. 1, $15.00..... .....40&20%

Nos. 3 and 4, Cross Cut, $23.00.40&20%

No. 5, Mill, $31.00..... .....40&20%

No. 10, $15.50..... .....40&20%

No. 11, $16.00..... .....40&20%

Taintor Positive, ₩ doz. $18..... .....60%

Sharpeners Knife—

Chicago Wheel & Mfg. Co.....60@65%

Smith & Hemenway Co..... .....70&5%

Tanite Mills ₩ gross, $14.40....35@33⅓%

Sharpeners, Skate—

Eureka Skate Sharpener.....₩ doz. $2.00

Shaves Spoke—

Iron.....*doz. $1 00@1.25*

Wood.....*doz. $1.75@2.25*

Bailey's (Stanley R. & L. Co.).....50&10%

Goodell's, ₩ doz. $9.00..... .....15&10%

Shears—

	Cast Iron...	*7*	*8*	*9 in.*
Best	$16.00	18.00	20.00 gro.	
Good.....	$13.00	15.00	17 00 gro.	
Cheap....	$5.00	6.00	7.00 gro.	

Straight Trimmers, &c.:

Best quality, Jap.....70@70¢&10%

" *Nickel*.....60@60¢&10%

Fair qual. Jap.....80@80¢&5%

" *Nickel*.....75@75¢&10%

Tailors' Shears.....40@40¢&10%

Acme Cast Shears..... .....40@40&5%

Heinisch's Tailors' Shears.....40@40&5%

Wilkinson's Hedge..... .....50%

Wilkinson's Sheep..... .....1900 list, 50%

Tinners' Snips—

Forged Handles, Steel Blades..20¢&10% Malleable Handles, Laid with Steel. 40%

Forged Handles, Steel Blades, Berlin.. 40&10%

Jennings & Griffin Mfg. Co's. 7 to 10 inch..... .....50%

Niagara Snips..... .....40%

Pruning Shears and Tools—

Cronk's Pruning Shears.....33⅓%

Disston's Combined Pruning Hook and Saw, ₩ doz. $18.00.....35@25&10%

Disston's Pruning Hook, ₩ doz. $12.00 25@25&10%

John T. Henry Mfg. Company:

Pruning Shears, all grades.....50&5%

Orange Shears..... .....50&30%

Grape..... .....50&10%

Tree Pruners..... .....75%

Nagley's Pruning Shears..... .....10&5%

P., S. & W. Co..... .....33⅓&33⅓&10%

Sheaves—Sliding Door—

Stowell's Anti-Friction..... .....50%

Patent Roller Hatfield's, Sargent's list, 80&10@80&10&7½

Reading..... ..... 70&10@75%

R. & E. list..... .....33⅓%

Sargent's list..... .....50&10⅓&10%

Shells—

Shells, Empty—

Brass Shells, Empty:

First quality, all gauges.....60&5%

Climax, Club, Rival, 10 and 12 gauge. 65&5%

Paper Shells, Empty:

Acme, Ideal, Leader, New Rapid, Smokeless, 10, 12, 16 and 20 gauge. 33⅓&10%

Blue Rival, New Climax, Primrose Club, Yellow Rival, 10, 12, 16 and 20 gauge..... .....15%

Climax, Club, League, Rival, 14, 16 and 20 gauge ($7.50 list).....20&5%

Climax, Club, League, Rival, 10 and 12 gauge..... .....25&5%

Defiance, High Base, New Victor, Nitro, Repeater, 10, 12, 16 and 20 gauge..... .....15%

Trap and Metal Lined, 10, 12, 16 and 20 gauge..... .....33⅓&10&5%

Shells, Loaded—

Loaded with Black Powder..... *40¢&5%*

Loaded with Nitro Powder..... *40¢&10¢&10¢&5%*

Shoes, Horse, Mule, &c.—

F. o. b., Pittsburg.

Iron.....*per keg $3.50*

Steel.....*per keg 3.25*

Burden's, all sizes, ₩ keg..... ..$3 60

Shot—

Drop, up to B, 25-lb. bag.....*$1.25*

Drop, B and larger, per 25-lb. bag.. $1.30

Buck, 25-lb. bag..... ...*$1.30*

Chilled, 25 lb. bag..... .....*$1.50*

Dust Shot, 25 lb. bag..... .....*$1.50*

On small lots 5@10 cents per bag is often added to above prices.

Shovels and Spades—

No. 2, Polished, Sq. or Rd. Point, D or L Handle:

	A1, 1st Grade.	*B2,* 2d Grade
Plain Back....	$10 50	$9 60
Strap Back....	9.20	9.00
Cleveland Pat'n	10.20	9.30

	C3, 3d Grade.	*D4,* 4th Grade
Plain Back....	$8.70	$8.10
Strap Back....	8.10	7.50
Cleveland Pat'n	8.40	7.80

All other sizes add 30c doz. Black deduct 30c doz.

Note.—The above are the regular Association prices to small retailers, but are often shaded by jobbers $0.50@1.00, and Common, Plain Back Shovels are generally sold by jobbers at $6.75@7.00.

Shovels and Tongs—

Brass Head.....60&5@60&10%
Iron Head.....60&5@60&10%

Sieves and Sifters—

Hunter's Imitation, gro. $10.00@10.50
Buffalo Metallic Blued, S. S. & Co., ₩ gr.:

14&16	16&18	18&20
$12.90	$13.80	$15.00

Eclipse.....₩ gr. $10.00
Electric Light.....₩ gr. $12.00
Hunter's Genuine.....₩ gr. $12.50
Shaker (Barler's Pat.) Flour Sifters.
₩ doz., $3.00.....90%

Sieves, Tin Rim—

Per dozen

Inch	14	16	18	20
Black, full size	$0 95	.98	1.00	1.10
Plated, full size	$1.05	1.08	1.10	1.20
Black, scant		$0.78	.80	.83

Sieves, Wooden Rim—

Nested, 10, 11 and 12 Inch.
Mesh 18, Nested, doz.....$0.75@0 80
Mesh 20, Nested, doz..... .85@ .90
Mesh 24, Nested, doz..... 1.00@1.05

Sinks—

Cast Iron—

Standard list.....60@60&10%
NOTE.—*There is not entire uniformity in lists used by jobbers.*

Wrought Steel—

Columbus Galv'd and Enameled..60&5%
Columbus, Painted.....45%
L. & G. Mfg. Co., Galvanized.....50%
L. & G. Mfg Co., Enameled.....50%

Skeins, Wagon—

Cast Iron.....70&10@75&
Malleable Iron.....40&10@50%
Steel.....40@40&10%

Slates—

"D" Slates.....40@40&10%
Unexcelled Noiseless Slates.....
60&10&10&10@50&10&10&10&10%
Wire Bound.....35@40&5%
Double Slates, add $1 case, net.

Slaw Cutters—See *Cutters.*

Slicers, Vegetable—

Sterling $2.00.....33⅓%

Snaps, Harness—

German.....40@40&10%
Covert Mfg. Co.:
Derby.....35&2%
High Grade.....45&2%
Jockey.....4-&2%
Trojan.....45&2%
Yankee.....35&2%
Yankee, Roller.....30&2%
Covert's Saddlery Works:
Banner.....60&10%
Crown.....60&10%
Model.....60&10%
Triumph.....60&10%
W. & E. T. Fitch Co.:
Bristol.....40&10%
Empire.....50&5%
German.....40%
National.....50&5%
Perfect.....45%
Clipper.....50&5%
Champion.....40%
Security.....40%
Victor.....60&5%
Oneida Community:
Solid Steel.....65@65&10%
Solid Swivel.....65&10@65&10&10%
Sargent's Patent Guarded.....
60%&10%

Snaths—

Scythe.....45&5&2%

Snips, Tinners'—See *Shears*

Soldering Irons—

See *Irons, Soldering.*

Spoke Trimmers—

See *Trimmers, Spoke.*

Spoons and Forks—

Silver Plated—

Flat Ware.....60&10@60&10&10%

Miscellaneous—

German Silver.....60&10@60&10&10%

Springs—

Door—

Gem (Coil).....20%
Star (Coil).....30%
Torrey's Rod, 39 in....₩ doz. $1.10@1.25
Victor (Coil).....50&10&10%

Carriage, Wagon, &c.

Factory Shipments.

	1¼ in and wider	*Blk.*	*Hf Brt.*	*Brt.*
		4¼	4¼	4¾c lb

Cliff's Bolster Springs.....35%
Cliff's Seat Springs.....₩ pair 55c

Sprinklers, Lawn—

Enterprise.....25@30%
Philadelphia No. 1, ₩ doz. $12; No. 2, $15; No. 3, $24.....30%

Squares—

Nickel plated.....
Steel and Iron.....} *List Jan. 5, 1900*
.....70@75%
Rosewood Hdl. Try Square and T-Bevels.....60&10&10@70%
Iron Hdl. Try Squares and T-Bevels,
40&10@40&10&10%
Disston's Try Sq. and T-Bev's.....60&10%
Winterbottom's Try and Miter.....5&10%

Squeezers—

Lemon—

Wood, Common, gro., No. 0, $5.25 @$5.50; No. 1, $6.25@$6.50.
Wood, Porcelain Lined:
Cheap.....doz. $2.00@2.75
Good Grade.....doz. $3.00@3.50
Tinned Iron.....doz. $0.75@1.25
Iron, Porcelain Lined doz. $2.90@3.25
Jennings' Star.....₩ doz. $1.85@1.90
Klug.....₩ doz. $2.00

Staples—

Barbed Blind.....*lb.* 7@7¼c
Electricians', Association list.....
80&10&10&10%
Fence Staples, same price as Barbed Wire. See Trade Report.
Poultry Netting. Staples....*per lb.*
5¼@5¼c
Grand Crossing Tack Co.'s list....80&10%

Steels, Butchers'—

Dick's.....40%
Foster Bros.....30%
C. & A. Hoffmann's.....40%

Steelyards.....25@25&10%

Stocks and Dies—

Blacksmiths'.....40@40&10%
Gardner Die Stocks No. 1.....50%
Gardner Die Stocks, larger sizes.....40%
Green River.....25%
Lightning Screw Plate.....25%
Little Giant.....25%
Reece's New Screw Plates.....25@30%
Curtis Reversible Ratchet Die Stock.25%

Stone—

Scythe Stones—

Chicago Wheel & Mfg. Co:
Gem Corundum, 10 inch, $10.80 per gro., 12 inch, $12.00
Cleveland Stone Co., list Nov., '92..33⅓%
Pike Mfg. Co., list '95-'96.....33⅓%

Oil Stones, &c.

Chicago Wheel & Mfg. Co.:
Corundum Oil, Double Grit.....50%
Corundum Axe Stones, Slips, etc.....55%
Pike Mfg. Co.:
Hindostan No. 1, ₩ D...8¢
Sand Stone.....5¢ } 33⅓&
Turkey Oil Stone, Extra, 5 to 8 in.....80¢ } 33⅓&10%
Turkey Slips.....$1.50
Lily White Washita.....60¢
Rosy Red Washita.....60¢
Washita Stone, Extra.....50¢
Washita Stone, No. 1.....40¢
Washita Stone, No. 2.....30¢
Lily White Slips.....90¢
Rosy Red Slips.....90¢
Washita Slips, Extra.....80¢
Washita Slips, No. 1.....70¢
Arkansas Stone, No. 1, 3 to 5 in. $2.80
Arkansas Stone, No. 1, 5 to 8 in. $3.50
33⅓%
India Oil Stones.....25%
Tanite Mills:
Emery Oil, ₩ doz. $5.00.....50@60%

Stoners—

Cherry—

Enterprise.....25@30%

Stops, Bench—

Millers Falls.....15&10%
Morrill's...₩ doz., No. 1, $10.00; No. 2, $11.00, 40&20%

Stops, Window—

Ives' Patent.....25&5%
Wilcox, Steel, per doz., $3.00.....50%

Stove Boards—

See *Boards, Stove.*

Stove Polish—See *Polish, Stove.*

Strainers Pump—

Diamond Joe Pump Strainers..per doz. 75¢

Straps, Box—

Cary's Universal, case lots.....20&10%

Stretchers, Carpet—

Cast Iron, Steel Points....*doz. 55@65c*
Socket.....*doz. $1.75*

Strops, Razor—

Smith & Hemenway Co.....70%

Stuffers, Sausage—

Miles' Challenge, ₩ doz. $20...50&50&5%
Enterprise Mfg. Co.....25@25&7½%
National Specialty Mfg. Co., list Jan. 1, '97.....30%

Tacks Brads, &c.—

List Jan. 15, '99.
Carpet Tacks, American...90&40@..%
American Cut Tacks.....90&30@..%
Swedes Iron Tacks.....90&40@..%
Swedes Upholsterers' Tacks.....
90&40@..%
Gimp Tacks.....90&40@..%
Lace Tacks.....90&40@..%
Trimmers' Tacks.....90&30@..%
Looking Glass Tacks.....70&10@..%
Bill Posters' and Railroad Tack....
90&40@..%
Hungarian Nails.....80&25@..%
Common and Patent Brads.70&10@..%
Trunk and Clout Nails....80&10@..%
NOTE.—*The above prices are for straight Weights.* An extra 5% is given Star Weights** and an extra 10&2% on Standard Weights.****

Miscellaneous—

Double Point Tacks....90&6 or 7 tens
Steel Wire Brads, R. & E. Mfg. Co.'s list.....50&10@60%
See also *Nails, Wire.*

Tanks, Oil—

Emerald, S. S. & Co.....30-gal. $3.20
Emerald, S. S. & Co.....60-gal., $4.00
Queen City S. S. & Co., 30-gal.....$3.50
Queen City S. S. & Co., 60-gal.....$4.25

Tapes, Measuring—

American Asses' Skin.....40&10@50%
Patent Leather.....25@2&5%
Steel.....40@40&5%
Chesterman's.....25@25&5%
Eddy's Steel.....40@40&5%
Eddy's Metallic.....33⅓@33⅓&5%
Keuffel & Esser Co., Steel and Metallic, Lower list, 1899.....35%
Lufkin's Steel.....33⅓&35%
Lufkin's Metallic.....30@30&5%

Thermometers—

Tin Case.....80@30&10%

Ties, Bale—Steel.

Standard Wire.....50&10&5%

Ties, Wall—

Cleveland Wire Spring Co.:
Galv. Steel 5-32 x 6½ in. ₩ 1000, $10.00
Galv. Steel 5-32 x 8½ in. ₩ 1000, $11.00
Galv. Steel 5-32 x 11½ in ₩ 1000, $12.00
Galv. Steel 5-32 x 15½ in. ₩ 1000, $14.00

Tinners' Shears, &c.—

See *Shears, Tinners', &c.*

Tinware—

Stamped, Japanned and Plated, sold very generally at net prices.

Tire Benders, Upsetters, &c.—See *Benders and Upsetters, Tire.*

Tobacco Cutters—

See *Cutters, Tobacco.*

Tools—

Coopers'—

L. & I. J. White.....20@30&5%

Saw—

Atkins' new list.....40%
Simonds' Improved.....33⅓%
Simonds' Crescent.....25%

Ship—

L. & I. J. White.....25%

Transom Lifters—

See *Lifters, Transom.*

Traps—Game—

Oneida Pattern.....75&5@75&10&5%
Newmouse.....45@50%
Hawley & Norton.....65&5@70%
Victor (Oneida Pattern).....75@75&10%
Star (Blake Pattern).....65&10@70&5%

Mouse and Rat—

Mouse, Wood, Choker, doz. holes....
8¼@9c
Mouse, Round or Square Wire.....
doz. $0.85@1.00

American Pattern French Rat and Mouse Traps—

No. 1, Detroit Marty Pattern, ₩ doz. $4.50; in ¼ gro. lots, ₩ doz.....$4.00
No. 2, Detroit Marty Pattern, ₩ doz. $3.25; in ¼ gro. lots, ₩ doz.....$3.00
Detroit Marty Pattern Mouse, ₩ doz. $2.00; in ¼ gro. lots, ₩ doz.....$1.75
Diamond Joe Mouse Traps....per doz. 60¢
Diamond Joe Rat Traps.....per doz. $1.00
Marty French Rat and Mouse Traps (Genuine):
No. 1, Rat, Each $1 12½; ₩ doz. $12.00
No. 3, Rat, ₩ doz. $6.00; case of 50 $5.25 doz.
No. 3½, Rat, ₩ doz. $4.75; case of 72 $4.25 doz.
No. 4, Mouse, ₩ doz. $3.50; case of 72 $2.75 doz.
No. 5, Mouse, ₩ doz. $2.75;..case of 72 $2.25
Schuyler's Rat Killer, No. 1, ₩ gr. $30.00; No. 2, ₩ gr. $30.00; Mouse, No. 3, $18.00.....50%

Fly—

Balloon, Globe or Acme.....
doz. $1.15@1.25; gro. $11.00@12.00
Harper, Champion or Paragon...
doz. $1.25@1.40; gro. $13.50@15 00

Trimmers, Spoke—

Bonney's Nos. 1 and 2.....40%

Trowels—

Disston Brick and Pointing.....30%
Disston Plastering.....25%
Disston "Standard Brand" and Garden Trowels.....40%
Never-Break Steel Garden Trowels...
gro. $7.00
Peace's Plastering.....30%
Rose Brick and Plastering.....25&5%
Woodrough & McFarlin, Pl'st'ring.25&10%

Trucks, Warehouse, &c.—

B. & L. Block Co.'s list.....40%
Daisy Stove Trucks, improved pattern ₩ doz. $21.00
Model Stove Trucks.....₩ doz. $18.50

Tubs, Wash—

	No. 1	2	3
Galvanized, per doz.	*$5.00*	5 50	6.00

Galvanized Wash Tubs (S. S. & Co.):

No.	1	2	3	10	20	30
Per doz.	$5 25	6.00	6.75	6.50	7 25	8.00

Twine—

Binder—

Small lots f. o. b. New York, Philadelphia or Boston.
White Sisal, 500 ft. to lb. per lb. 7¼ @7½c
Standard, 500 ft. to lb....per lb. 7¼ @7½c
Manila, 600 ft. to lb.....per lb. 9@ 9½c
Pure Manila, 650 ft. to lb. per lb. 10½c
For carloads deduct ¼c per lb.

Miscellaneous—

Flax Twine—	*BC*	*B.*
No. 9, ¼ and ½-lb. Balls	*22c*	*20c*
No. 12, ¼ and ½-lb. Balls	*18c*	*21c*
No. 18, ¼ and ½-lb. Balls	*16c*	*19c*
No. 24, ¼ and ½-lb. Balls	*15½c*	*18½c*
No 36, ¼ and ½-lb. Balls	*15c*	*18c*

Chalk Line, Cotton, ½-lb. Balls.....
22@22½c
Cotton Mops, 6, 9, 12 and 15 lb. to doz.....7@8c
Cotton Wrapping, 5 Balls to lb.....
10¼c@..
American 2-Ply Hemp, ¼ and ½-lb. Balls.....12@13c
American 3 Ply Hemp, 1-lb. Balls..
12@13c
India 2-Ply Hemp, ¼ and ½-lb. Balls (Spring Twine).....9c
India 3-Ply Hemp, 1-lb. Balls.....9c
India 3-Ply Hemp, 1¼-lb. Balls.....8c
2, 3, 4 and 5-Ply Jute, ½-lb. Balls...
10@10½c
Mason Line, Linen, ½-lb. Balls...15c
No. 264 Mattress, ¼ and ½-lb. Balls.37c
Wool.....7c

Vises—

Solid Box.....50%
Bonney's Saw Vises.....40&10%

Parallel—

Athol Machine Co.:
Simpson's Adjustable.....40%
Standard.....40%
Amateur.....25%
Bonney's.....40&10%
Fisher & Norris Double Screw....15&10%
Hollands':
Machinists'.....40%
Kevstone.....70%
Lewis Tool Co.....20&30%
Massey's Perfect.....15@20%
Massey's Clincher.....30&40%
Merrill's.....20%
Miller's Falls.....low list 10%
Parker's:
Victor.....20&25%
Regulars.....20@25%
Vulcan's.....40@45%
Combination Pipe.....55@60%
Prentiss.....20@25%
Sargent's.....40%
Simpson's Adjustable.....40%
Snedliker's X. L.....20@25%
Stephens'.....20@25%
Van, W. & W. Hdw. Co.....40%

Saw Filers—

Bonney's, No. 1, $13; No. 3, $16 .50&10%
Disston's D 3 Clamp and Guido, ₩ doz $30.....25%
Reading.....40&10%
Wentworth's Rubber Jaw, Nos. 1, 2 and 3.....30&10%

Miscellaneous—

Bignall & Keeler Combination Pipe Vise.....60%
Parker's Combination Pipe:
87 Series.....60%
187 Series.....60&5%
No. 870.....40%

Wads—Price Per M.

B. E., 11 up.....*60c*	Dis. 50&2%
B. E., 9 and 10.....*70c*	
B. E., 8.....*80c*	
B. E., 7.....*80c*	
P. E., 11 up.....*$1.00*	
P. E., 9 and 10.....*1.25*	
P. E., 8.....*1.50*	
P. E., 7.....*1.50*	
Ely's B E., 11 and larger..*$1.70@1.75*	
Ely's P. E., 12 to 20.....*$3 00@3.25*	

Wagon Jacks—

See *Jacks, Wagon.*

Ware, Hollow—

Aluminum—
S. S. & Co. Reduced List.....40%

Cast Iron, Hollow—

Stove Hollow Ware:
Ground.....65%
Unground.....70%
White Enameled Ware:
Maslin Kettles.....80%
Boilers and Saucep ns.....60&10%
Tinned Boilers and Saucepans.....
60&10%
See also *Pots, Glue.*

Enameled—

Agate Nickel Steel Ware, list July '99.35%
Granite Ware, list Jan. 1, '94, revised Jan. 2, '95.....40&10%
Second Quality, Agate Nickel Steel..65%
Second Quality, Granite.....
70&10&70&10&10%
Iron Clad:
Peppered Ware, high list.....70%
Mottled Ware, high list.....75%
Never Break Enameled....50&5@50&10%

Tea Kettles—

Galvanized Tea Kettles:

Inch	6	7	8	9
Each	*45c*	*50c*	*55c*	*65c*

Steel Hollow Ware.

Avery Spiders & Griddles.....65@65&5%
Avery Kettles.....50%
Porcelained.....50&5@50&10%
Never Break Spiders and Griddles.....
65@65&5%
Never Break Kettles.....60@60&10%
Solid Steel Spiders & Griddles.....65&5%
Solid Steel Kettles.....60%
Solid Steel Ware, Enameled.....50&5%

Washboards—

Solid Zinc: ₩ doz
Crescent, family size, bent frame..$3.00
Red Star, laundry size, stationary protector.....$4.25
Double Zinc Surface:
Saginaw Globe, family size, stationary protector.....$2.65
Wilson, family size, bent frame...$2.75
Single Zinc Surface:
Naiad protector, family size, open back peforated.....$2.40
Saginaw Globe, protector, family size, ventilated back.....$2.25
Wilson, bent frame family size, ventilated back.....$2.25

Washers—

Leather, Axle—

Solid.....80&10&10@85%
Patent.....85&10@85&20%
Coil: ¾ 1 1¼ 1¾ *Inch.*
11c 12c 13c 15c *per 100*

Iron or Steel—

Size bolt.... 5-16 ⅜ ½ ⅝ ¾
Washers....$5.60 4.70 3.50 3.20 3.00
In lots less than one keg add ¼c per lb., 5-lb. boxes add ½c to list.

Cast Washers—

Over ½ inch, barrel lots, per lb.....
1½@1¾c

Washer Cutters—

See *Cutters, Washer.*

Washing Machines—

See *Machines, Washing.*

Water Coolers—

See *Coolers, Water.*

Wedges—

Oil Finish.....*lb.* 3¼c

Weights, Sash

Per ton.....$20.00@22.50
Western Foundries make price $1@$2 lower.

Well Buckets, Galvanized

See *Pails, Galvanized.*

Wheels Well—

8-in., $1.65@1.75; 10-in., $2.00@2.10; 12-in., $2.50@2.75; 14-in., $3.25@3.50

Wire and Wire Goods—

Brt. and Ann., 6 to 9.....70&10%
Brt. and Ann., 10 to 18.....72½&5%
Brt. and Ann., 19 to 26.....75&7½%
Brt. and Ann., 27 to 36.....75&10&2½%
Cop'd and Galv., 6 to 9.....66⅔&5%
Cop'd and Galv., 10 to 18.....70%
Cop'd and Galv., 19 to 26.....70&10%
Cop'd and Galv., 27 to 36.....72½&5%
Tinned, 6 to 18.....70&10&5%
Tinned, 15 to 18.....70&5&5%
Tinned, 19 to 26.....70%
Tinned, 27 to 36.....65&10%
Annealed Wire on Spools..70&5@70&10%
Brass and Copper Wire on Spools..60&5@70&10%
Brass, list Feb. 26, '96.....25%
Copper, list Feb. 26, '96.....15%
Cast Steel Wire.....50%
Stubs' Steel Wire.....$6.00 to £. 40%
Wire Clothes Line, see *Lines.*
Wire Picture Cord, see *Cord.*

Bright Wire Goods—

Iron and Brass, list July 1, 1899....
85&10@..%

Wire Cloth and Netting—

Galvanized Wire Netting. 80&20@85%
Painted Screen Cloth per 100 ft. $1.00
Light Hardware Grade:
2-8 Mesh, Plain (8c. list) sq. ft..
1¾c
2-8 Mesh, Galv. (8c. list) sq ft...
2¾c

Wire Barb—See *Trade Report.*

Wire, Rope—See *Rope, Wire.*

Wrenches—

Agricultural.....70&10@75%
Case lots.....75&10%
Acme.....60&10%
Baxter's S.....60&10%
Bull Dog.....70%
Coes' Genuine.....40&10&5&5%
Coes' "Mechanics".....40&10&10&5&5%
Alligator.....60&10&10%
Bemis & Call's:
Adjustable S.....35&5%
Adjustable S Pipe.....40%
Brigg's Pattern.....30&10%
Combination Black.....40&5%
Combination Bright.....40%
Cylinder or Gas Pipe.....55%
Extra Heavy.....45%
Merrick's Pattern.....50%
No. 3 Pipe, Bright.....55%
Bindley Automatic.....30%
Boardman's.....33⅓%
Donohue's Engineer.....40&10%
Eagle.....50&10%
Gem Pocket.....30%
Hercules.....70%
Knife Handle, Machinists' (W. & B.):
Case lots.....50&10%
Less than case lots.....50&5%
Improved Pipe (W. & B.).....6%
Solid Handles, P. S. & W.....50&10%
Stevenson.....60&10&10%

Wrought Goods—

Staples, Hooks, &c., list March 17 '92.....85&10@85&25%

Yokes, Neck—

Covert Saddlery Works, Trimmed.60&5%
Covert Saddlery Works, Neck Yoke Centers.....70%

Yokes, Ox, and Ox Bows—

Fort Madison's Farmers & Freighters'.. list net

Zinc—

Sheet.....*lb* 6½c@7c

PAINTS, OILS AND COLORS.—Wholesale Prices.

White Lead, Zinc, &c.

Lead, Foreign white, in Oil.. .. 7¾@ 9¾
Lead, American White, in Oil:
Lots of 500 ℔ or over.....@ 6¼
Lots less than 500 ℔.....@ 7
Lead, White, in oil, 25 ℔ tin pails, add to keg price.....@ ¼
Lead, White, in oil, 12½ ℔ tin pails, add to keg price.....@ 1
Lead, White, in oil, 1 to 5 ℔ assorted tins, add to keg price..@ 1¼
Lead White, Dry in bbls.....5¼@ 6
Lead, American. Terms: On lots of 500 lbs. and over, 60 days, or 2% for cash if paid in 15 days from date of invoice.
Zinc, American, dry.....℔ ℔ 4½@ 4¾
Zinc, Paris, Red Seal, dry.....@ 8½
Zinc, Paris, Green Seal, dry.....@ 9¼
Zinc, Antwerp Red Seal, dry.....@ 6½
Zinc, Antwerp, Green Seal, dry..@ 7¼
Zinc, V. M. French, in Poppy Oil, Green Seal:
Lots of 1 ton and over.....12 @12½
Lots of less than 1 ton.....12¼@12¾
Zinc, V. M. French, in Poppy Oil, Red Seal:
Lots of 1 ton and over.....10¾@11¼
Lots of less than 1 ton.....11@11½
DISCOUNTS.—V. M. French Zinc.—Discounts to buyers of 10 bbl. lots of one or assorted grades, 1%; 25 bbls., 2%; 50 bbls., 4%.

Dry Colors.

Black, Carbon.....℔ ℔ 8 @20
Black, Drop, Amer.....2½@ 4
Black, Drop, Eng.....7 @11
Black, Ivory.....15 @21
Lamp, Com.....3 @ 5
Blue, Celestial.....℔ ℔ 4 @ 6
Blue, Chinese.....80 @35
Blue, Prussian.....28 @34
Blue, Ultramarine.....30 @35
Brown, Spanish.....1¼@ 1
Brown, Vandyke, Amer.....1¾@ 2½
Brown, Vandyke, Foreign.....2½@ 3½
Carmine, No. 40.....℔ ℔2.05@2.75
Green, Chrome, ordinary.....5 @ 6
Green, Chrome, pure.....16 @20
Lead, red, bbls. ½ bbls. and kegs:
Lots 500 ℔ or over.....@ 6
Lots less than 500 ℔.....@ 6½
Litharge, bbls. ½ bbls. and kegs:
Lots 500 ℔ or over.....@ 6
Lots less than 500 ℔.....@ 6½
Ocher, French Washed.....1¼@ 2½
Ocher, Dutch Washed.....4¾@ 5
Ocher, American.....℔ ton $10.00@15.00
Orange Mineral, English..℔ ℔ 8½@11¼
Orange Mineral, French.....11½@13½
Orange Mineral, German.....8¾@ 9¼
Orange Mineral, American.....7¾@ 8
Red, Indian, English.....4½@ 8½
Red, Indian, American.....3 @ 3½
Red, Turkey, English.....4 @ 6
Red, Tuscan, English.....7 @10
Red, Venetian, Amer., ℔ 100 ℔. 80@1.10
Red Venetian, English.℔ ℔ .. 1.80@2.10
Sienna, Italian, Burnt and Powdered.....℔ ℔ 3½@ 9½
Sienna, Ital., Raw, Powd.....3 @ 7½
Sienna, American, Raw.....1½@ 2
Sienna, American, Burnt and Powdered.....℔ ℔ 1½@ 2
Talc, French.....℔ 100 ℔ @1.25@1.50
Talc, American.....90 @1.10
Terra Alba, French, ℔ 100 ℔. 95 @1.00
Terra Alba, English.....95 @1.00
Terra Alba, American No. 1....85 @85
Terra Alba, American No. 2....45 @50
Umber, Turkey, Bnt. & Pow.℔ ℔ 2½@ 3½
Umber, Turkey, Raw & Powd. 2½@ 3½
Umber, Bnt. Amer.....1½@ 2
Umber, Raw, Amer.....1½@ 2
Yellow, Chrome.....10½@25
Vermilion, American Lead.....10 @25
Vermilion, Quicksilver, bulk..@70
Vermilion, Quicksilver, bags..@71
Vermilion, English, Import..80 @95
Vermilion, Chinese.....$1.00@1.30

Colors in Oil.

Black, Lampblack.....12 @14
Blue, Chinese.....36 @40
Blue, Prussian.....32 @35
Blue, Ultramarine.....13 @16
Brown, Vandyke.....9½@13
Green, Chrome.....10 @12
Green, Paris.....@24
Sienna, Raw.....10 @13
Sienna, Burnt.....10 @13
Umber, Raw.....9½@12
Umber, Burnt.....9½@12

Miscellaneous.

Barytes, Foreign, ℔ ton....$19.00@21.00
Barytes, Amer. floated.....19.00@20.00
Barytes, Crude.....9.00@10.00
Chalk, in bulk.....℔ ton 2.00@ 2.75
Chalk, in bbls.....℔ 100 ℔ ..@ 35
China Clay, English..℔ ton 13.00@17.50
Cobalt, Oxide.....℔ 100 ℔ 2.20@ 2.50
Whiting, Common. ℔ 100 ℔ .42@ .52
Whiting, Gilders'.....54@ .64
Whiting, extra Gilders'.....58@ .68

Putty.

In bulk.....$1.90
In bladders.....2.40
In cans, 12 ℔ to 25 ℔.....2.50
In cans, 1 ℔ to 5 ℔.....3.60

Spirits Turpentine.

In Southern bbls.....@40¢
In machine bbls.....@40¼¢

Glue.

Low Grade.....℔ ℔12 @15½
Cabinet.....13½@16½
Medium White.....14½@16½
Extra White.....18 @23
French.....12 @40
Irish.....13½@16

Animal, Fish and Vegetable Oils.

Linseed, City, raw.....℔ gal. 65@68
Linseed, City, boiled.....65 @70
Linseed, Scale and West'n, raw 63 @65
Linseed, raw Calcutta see i.....@85
Lard, Prime.....65 @66
Lard, Extra No. 1.....50 @52
Lard, No. 1.....41 @43
Cotton-seed, Crude.....27 @27½
Cotton-seed, Summer Yellow, prime.....29½@30
Cotton-seed Summer Yellow, off grades.....29 @29½
Sperm, Crude.....@..
Sperm, Natural Spring.....@..
Sperm, Bleached Spring.....@..
Sperm, Natural Winter.....58 @59
Sperm, Bleached Winter.....63 @64
Whale, Crude.....@..
Whale, Natural Winter.....@47
Whale, Bleached Winter.....@48
Menhaden, Crude, Sound.....28 @29
Menhaden, Light Strained.....32 @33
Menhaden, Bleached Winter...35 @..
Menhaden, Ex Bleached Winter 38 @39
Tallow, prime.....52 @53
Cocoanut, Ceylon.....5.60@5.65
Cocoanut, Cochin.....6¼@ 6¾
Cod, Domestic.....34 @35
Cod, Newfoundland.....36 @38
Red Elaine.....35 @..
Red Saponified.....℔ ℔ 5 @ 5¼
Olive, Italian, bbls.....57½@65
Neatsfoot, prime.....52 @54
Palm, prime, Lagos.....℔ ℔ 5¼@6

Mineral Oils.

Black, 20 gravity, 25@30 cold test.....℔ gal. 9¾@10¾
Black, 29 gravity, 15 cold test. 10¾@11¾
Black, summer.....9¾@ 9¾
Cylinder, light filtered.....14¾@17¾
Cylinder, dark filtered.....11¾@16¾
Paraffine, 903-907 gravity.....12¾@13¾
Paraffine, 903 gravity.....11¾@11¾
Paraffine, 883 gravity.....9¾@10
Paraffine, red, No. 1.....12¾@13¾
In small lots ¼¢ advance.

THE IRON AGE.

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CURRENT METAL PRICES.

FEBRUARY 20, 1901.

The following quotations are for small lots. Wholesale prices, at which large lots only can be bought, are given elsewhere in our weekly market report.

IRON AND STEEL—

Bar Iron from Store—

Common Iron: Duty, Round, 0.6¢ ₱ ℔; Square, 0.8¢ ₱ ℔
1 to 1⅝ in. round and square ..... } ₱ ℔ 1.70@1.80¢
1⅛ to 4 in. x ⅝ to 1 in..... }
Refined Iron:
1 to 1⅝ in. round and square..... } ₱ ℔ 1.75@1.85¢
1⅛ to 4 in. x ⅜ to 1 in..... }
1⅛ to 4 in. x ⅛ to 3-16..... ₱ ℔ 1.90@2.00¢
Rods—⅜ and 11-16 round and square. ₱ ℔ 2.10@2.20¢

Angles:	Cts ₱ ℔
3 in x ¼ in. and larger	2.00¢
3 to 3½ in. x 3-16 in	2.00¢
1½ to 3 in. x ¼ n	2.10¢
1½ to 2¾ in. x 3-16 in and thicker	2.00¢
1 to 1¼ in. x 3-16 in	2.10¢
1 to 1¾ x ⅛ in	2.20¢
⅞ x ⅛ in	2 50¢
¾ x ⅛ in	2.55¢
⅝ x ⅛ in	3.20¢
½ x 3-32 in	3.70¢
Tees:	
1 in	2.40¢
1¼ in	2.30¢
1½ in, and larger	2 20¢
Beams	2.15¢
Channels, 3 in. and larger	2.15¢
Bands—1½ to 6 x 3-16 to No. 8	₱ ℔ 2.15¢
"Burden's Best" Iron, base price	₱ ℔ 3.15¢
Burden's "H. B & S. Iron, base price	₱ ℔ 2.95¢
"Ulster"	₱ ℔ 3.60¢
Norway Bars	4 @4½¢
Norway Shapes	4¼@4¾¢

Merchant Steel from Store—

	per ℔
Bessemer Machinery	1.75 to 1.85¢
Toe Calk, Tire and Sleigh Shoe	2.00@2.50¢
Best Cast Steel, base price in small lots	7½¢
Best Cast Steel Machinery, base price in small lots	6 ¢

Soft Steel Sheets—

¼ inch	2¢	No. 14	2.50¢
8-16 inch	2.05¢	No .16	2.60¢
No. 8	2 20¢	No. 18	2 90¢
No. 10	2.30¢	No. 20	3.30¢
No. 12	2.40¢	No. 22	3.40¢

Sheet Iron from Store.

Black.

	One Pass, C. R. Soft Steel.	R. G. Cleaned.
Nos. 14 to 16	₱ ℔, 3.05	3.10¢
Nos. 18 to 21	₱ ℔, 3.15	3.20¢
Nos. 22 to 24	₱ ℔, 3.25	3.30¢
Nos. 25 and 26	₱ ℔, 3.35	3.40¢
No. 27	₱ ℔, 3.45	3.50¢
No. 28	₱ ℔, 3.55	3.60¢

Russia, Planished, &c.

Genuine Russia, according to assortment ..... ₱ ℔ 10½¢
Patent Planished ..... ₱ ℔ A, 9½¢; B, 8½¢, net.

Galvanized.

	B. B.	
Nos. 10 to 16	₱ ℔, 12¢	70@70&5% off
Nos. 17 to 21	₱ ℔, 13¢	
Nos. 22 to 24	₱ ℔, 14¢	
Nos. 25 to 26	₱ ℔, 15¢	
No. 27	₱ ℔, 16¢	
No. 28	₱ ℔, 17¢	
No. 29	₱ ℔, 19¢	
No. 30	₱ ℔, 21¢	

36 in. 1¢ ₱ ℔ higher.

Foreign Steel from Store—

Best Cast	₱ ℔ 15 ¢
Extra Cast	₱ ℔ 18 @ 20 ¢
Swaged, Cast	₱ ℔ 16 ¢
Best Double Shear	₱ ℔ 15 ¢
Blister, 1st quality	₱ ℔ 13 ¢
German Steel, Best	₱ ℔ 10 ¢
2d quality	₱ ℔ 9 ¢
3d quality	₱ ℔ 8 ¢
Sheet Cast Steel, 1st quality	₱ ℔ 15 ¢
2d quality	₱ ℔ 14 ¢
3d quality	₱ ℔ 12 ¢
R. Mushet's "Special"	₱ ℔ 46 ¢
" " Annealed	₱ ℔ 75 ¢
" " "Titanic"	₱ ℔ 19 ¢
Hobson's Choice XX Extra Best	₱ ℔ 35 ¢
Jessop Self Hardening	₱ ℔ 45 ¢
Seamans' "Nelson" Steel	40 ¢
Hobson's "Soho" Special Self-Hardening	₱ ℔ 43 ¢

METALS—

Tin—

Duty.—Pigs, Bars and Block. Free. Per ℔
Banca, Pigs ..... 27¾@28¢
Straits, Pigs ..... 27¼@27¾¢
Straits in Bars ..... 28¼@28¾¢

Tin Plates—

American Charcoal Plates.

Calland Grade:
IC, 14 x 20 ..... $6.75
IX, 14 x 20 ..... 8.25
Melyn Grade:
IC, 14 x 20 ..... 6.25
IX, 14 x 20 ..... 7.75
Allaway Grade:
IC, 14 x 20 ..... 5.50
IX, 14 x 20 ..... 6.50

American Coke Plates—Bessemer—

IC, 14 x 20 ..... 108 ℔ ..... $4.85@4.90
IX, 14 x 20 ..... $5.95@6.00
IXX, 14 x 20 ..... $7.20@7.25

American Terne Plates—

IC, 20 x 28 ..... $9.50
IX, 20 x 28 ..... 11.25

Tin Boiler Plates, American—

IXX, 14 x 26 ..... 112 sheets $12.50
IXX, 14 x 28 ..... 112 sheets 13.50
IXX, 14 x 31 ..... 112 sheets 15.00

Copper—

Duty: Pig, Bar and Ingot and Old Copper free Manufactured, 2½¢ ₱ lb.

Ingot—

Lake ..... 17¼@17¾¢
Ansonia grade Casting ..... 16¾@17¼¢

Sheet and Bolt—

January 19, 1900. Net.
Prices, in cents per pound.
Sheet 30 x 60.

Not wider than	Not longer than	And longer than	64 oz. & over, 50 lb. sheet, 30 x 60 and heavier.	32 oz. to 64 oz., 25 to 50 lb.	24 oz. to 32 oz., 18¾ to 25 lb.	16 oz. to 24 oz., 12½ to 18¾ lb.	14 oz. and 15 oz., 11 to 12½ lb.	12 oz. and 13 oz., 9⅜ to 11 lb.	10 oz. and 11 oz., 7½ to 9⅜ lb.	8 oz. and 9 oz., 6¼ to 7½ lb.	Lighter than 8 oz.
Ins.	Ins.	Ins.									
30	72	.....	20½	20½	20½	20½	21½	22½	23½	26½	29½
30	96	72	20	20	20	20	21	22	23	26½	
30	.....	96	20	20	20	20	21	22	26½		
36	72	.....	20	20	20	20	22	22½	24½	27½	30½
36	96	72	20	20	20	20	22	22½	26½	29½	
36	120	96	20	20	20	20	22	23½			
36	.....	120	20	20	20	21	22				
48	72	.....	20	20	20	21	22	24½	27½	30½	
48	96	72	20	20	20	21	23	25½	28½		
48	120	96	20	20	20	22	24	28½			
48	.....	120	20	20	21	23	26				
60	72	.....	20	20	21	22	23½	26½	31½		
60	96	72	20	20	21	23	24½	29½			
60	120	96	20	20	22	23	26				
60	.....	120	20	20	22	24½	28½				
72	96	.....	20	20	21½	23	26½				
72	144	96	20	20	22	25½	30½				
72	.....	144	21	21	23	28½					
108	120	.....	21½	21½	23	29½					
108	.....	120	23½	24½	26						
wider than 108	144	.....	24½	26½	28½						
	.....	144	25½	28½							

Bolt Copper, ⅜ inch diameter and over, ₱ ℔ 20½¢
Circles, Segments and Pattern Sheets, 3¢ ₱ ℔ advance over price of Sheet Copper required to cut them from.
Cold or Hard Rolled Copper. 14 oz. ₱ square foot and heavier, 1¢ ₱ ℔ over the foregoing prices.
Cold or Hard Rolled Copper, lighter than 14 oz. ₱ square foot, 2¢ ₱ ℔ over the foregoing prices.
All Polished Copper, 20 in. wide and under. 1¢ ₱ ℔ advance over the price for Cold Rolled Copper.
All Polished Copper, over 20 in. wide, 2¢ ₱ ℔ advance over the price for Cold Rolled Copper.

Planished Copper—

1¢ ₱ ℔ more than Polished Copper.

Copper Bottoms, Pits and Flats—

14 oz. to square foot and heavier, ₱ ℔ ..... 24½¢
12 oz. and up to 14 oz. to square foot, ₱ ℔ ..... 25½¢
10 oz. and up to 12 oz., ₱ ℔ ..... 27½¢
Lighter than 10 oz., ₱ ℔ ..... 30½¢
Circles less than 8 in. diameter, 2¢ ₱ ℔ additional.
Circles over 13 in. diameter are not classed as Copper Bottoms.

Copper Wire—

Hard and Soft Drawn—B. & S. Gauge.
Last March 2, 1900.

Nos.	0000 to 8 Base	9 and 10		11 and 12
		½¢		¾¢ ₱ ℔ adv.
Nos.	13	14	15	16
	⅝¢	¾¢	1¢	1¼¢ ₱ ℔ adv.
Nos.	17	18	19	20
	1¾¢	2¢	2½¢	2¾¢ ₱ ℔ adv.

Seamless Brass Tubes—

Standard always Stubs' gauge, unless otherwise ordered.
Feb. 6, 1899. Net. Outside Diameter.

Stubs' W. G.	B. & S. W. G.	¼	5-16	⅜	7-16	½	9-16	⅝	¾	⅞	1	1¼	1½
4-11	3- 9	.....	.....	.....	.....	33	31	30	29	28	27	25	24
12	10	.....	.....	37	35	33	31	30	29	28	27	25	24
13	11	.....	.....	37	35	33	31	30	29	28	27	25	24
14	12	.....	41	37	35	33	31	30	29	28	27	25	24
15	13	.....	42	38	36	33	32	31	30	30	28	26	25
16	14	.....	43	39	37	34	33	32	31	30	29	26	25
17	15	.....	44	40	38	35	34	33	32	31	30	27	26
18	16	61	46	42	39	36	35	34	32	31	30	28	27
19	17	62	47	43	40	37	36	35	34	33	32	30	29
20	18-19	64	49	44	41	39	38	37	36	35	34	32	31
21	20	66	51	46	43	41	40	39	38	37	36	35	34
22	21	71	56	48	44	42	41	40	39	38	37	37	36
23	22	76	61	50	46	44	43	42	41	40	39	39	39
24	23	81	66	53	48	46	45	44	43	41	40	40	41
25	24	86	71	56	51	49	47	46	45	43	43	44	45

Copper Bronze and Gilding Tube, 3¢ ₱ ℔ additional

Iron Pipe Sizes—Brass

⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6 inch
36	32	20	27	21	21	21	21	21	21	21	23	23	25	27	28¢ ₱ ℔

Copper, Bronze or Gilding Tubes, 3¢ ₱ ℔ additional

Brazed Brass Tubing.

(*To No.* 19, *inclusive.*) Feb. 26 1896
Brown & Sharpe's gauge standard.

	Per ℔.
Plain Round Tube, ¼ in. up to 2 in.	$0.35
" " ⅜ " " ¾ "	.38
" " ½ " " ¾ "	.38
" " 5-16 " " ¾ "	.48
" " ⅜ " " ¾ "	1.00
" " ½ " " 1 "	1.50
Smaller than ¼ inch	Special
3 inch and larger	.40
Over 3 inch to 3½ inch, inclusive	.45
Over 3½ inch	.50

Bronze and Copper, advance on Brass List, 3 cents.
Discount from list ⅝ 35%

Roll and Sheet Brass—

(*Brown & Sharpe Standard Gauge.*)

Common High Brass Wider than and including	in. 2 12	in. 12 14	in. 14 16	in. 16 18	in. 18 20	in. 20 22	in. 22 24	in. 24 26
To No. 20 inclusive	.22	.23	.25	.27	.29	.31	.33	.36
Nos. 21 22, 23 and 24	.22	.24	.26	.28	.30	.32	.34	.37
Nos. 25 and 26	.23	.24½	.27	.29	.31	.33	.35	.38
Nos. 27 and 28	.23	.25	.28	.30	.32	.34	.36	.39
Common High Brass Wider than and including	in. 26 28	in. 28 30	in. 30 32	in. 32 34	in. 34 36	in. 36 38	in. 38 40	in. 40
To No. 20, inclusive	.39	.42	.46	.50	.55	.60	.65	*
Nos. 21, 22, 23 and 24	.40	.43	.47	.51	.56	.61	.68	
Nos. 25 and 26	.41	.44	.48	.52	.57	.63	.71	
Nos. 27 and 28	.42	.45	.49	.53	.58	.65	.75	

* Special prices not less than 80 cents.
Add ⅛¢ ₱ ℔ additional for each number thinner than Nos. 28 to 38 inclusive. Discount from List..... 20%

Wire in Coils. List February 26, 1896.

Brown & Sharpe's gauge the standard.	Com. high brass.	Low brass.	Glid'g bronze and copper
All Nos. to No. 10, inclusive	$0.23	$0.27	$0.28
Above No. 10 to No. 16	.23½	.27½	.28½
No. 17 and No. 18	.24	.28	.32
No. 19 and No. 20	.25	.29	.33
No. 21	.26	.30	.34
No. 22	.27	.31	.35
No. 23	.28	.32	.36
No. 24	.30	.34	.38
No. 25	.32	.36	.40
No. 26	.35	.39	.43
No. 27	.38	.42	.46
No. 28	.42	.46	.51
No. 29	.45	.49	.54
No. 30	.48	.52	.62
No. 31	.51	.55	.67
No. 32	.55	.59	.73
No. 33	.59	.63	.82
No. 34	.64	.68	.95
No. 35	.70	.74	1.30
No. 36	.76	.80	1.50
No. 37	1.00	1.04	1.70
No. 38	1.30	1.34	2.00
No. 39	2.00	2.00	3.25
No. 40	2.60	2.60	5.75

Discount, Brass Wire, 20%; Copper Wire, Nzt. List November 16, '96.
Spring Wire, 2¢ ₱ ℔ advance.

Tobin Bronze—

Straight, but not turned, Rods, ⅝ to 3 in. diameter, ₱ ℔, net ..... 20¢
Finished Piston Rods, ⅝ to 2½ in. diameter, ₱ ℔ net. 21¢
Other sizes and extreme lengths, special prices.

Spelter—

Duty: In Blocks or Pigs, 1¢ ₱ ℔
Western Spelter ..... 4.45@4½¢

Zinc.

Duty: Sheet, 2¢ ₱ ℔.
600 ℔ casks ..... 6¾¢ | Per ℔ ..... 7¼¢

Lead.

Duty: Pigs and Bars and Old, 2½¢ ₱ ℔. Pipe and Sheets, 2¾¢ ₱ ℔.

American Pig	4.60@4.62½¢
Bar	6½@5½¢
Pipe	5¢
Tin Lined Pipe	12½¢ ..... 20% off
Block Tin Pipe	40 ¢ ..... 20% off
Sheet Lead, full rolls	7¢ ..... 20% off
Sheet Lead, cut	7½¢ ..... 20% off

Old Lead in exchange, 4½¢ ₱ ℔.

Solder.

½ & ¼, guaranteed ..... 18 @18½¢
No. 1 ..... 14½@16½¢
Prices of Solder indicated by private brand vary according to composition.

Antimony—

Duty, ¾¢ ₱ lb.

Cookson	₱ ℔ 11¢
Hallett's	₱ ℔ 9½@10¢
U. S	₱ ℔ 9½¢

Aluminum—

Duty: Crude, 8¢ ₱ ℔. Plates, Sheets, Bars and Rods, 13¢ ₱ ℔.

No. 1 Aluminum (guaranteed over 99% pure), in ingots for remelting:
Small lots ..... ₱ ℔ 37¢
100-℔ lots ..... ₱ ℔ 35¢
No. 2 Aluminum (guaranteed to be over 90% pure), in ingots for remelting:
Small lots ..... ₱ ℔ 34¢
100-℔ lots ..... ₱ ℔ 33¢
Aluminum Sheet, B. & S. gauge. 50 ℔ or more

Wider than	6-in.	14-in.	24-in.
And including	14-in.	24-in.	30-in.
	₱ ℔.	₱ ℔.	₱ ℔
Nos. 13 to 19	$0.42	$0.44	$0.47
No. 20	.44	.46	.49
Nos. 21 to 23	.46	.48	.51
No. 24	.46	.50	.53
No. 25	.47	.51	.54
No. 26	.47	.54	.59
No. 27	.48	.57	.62
No. 28	.48	.57	.64
No. 29	.49	.60	.69
No. 30	.50	.64	.77

Note.—Lots of less than 50 ℔ 5¢ ₱ ℔ extra.

Aluminum Wire, B. & S. Gauge.

Larger than No. 9	₱ ℔ 40¢	No. 15	₱ ℔ 43¢
No. 9 to No. 10	₱ ℔ 40½¢	No. 17	₱ ℔ 50¢
No. 11	₱ ℔ 41 ¢	No. 18	₱ ℔ 55¢
No 12	₱ ℔ 41½¢	No. 19	₱ ℔ 60¢
No. 13	₱ ℔ 42 ¢	No. 20	₱ ℔ 65¢
No 14	₱ ℔ 42½¢	No. 21	₱ ℔ 85¢

Old Metals.

Dealers' Purchasing Prices Paid in New York.

Heavy Copper	₱ ℔ 14¾¢
Light and Tinned Copper	₱ ℔ 13¾¢
Heavy Brass	₱ ℔ 9¾¢
Light Brass	₱ ℔ 7¾¢
Lead	₱ ℔ 4¼¢
Tea Lead	₱ ℔ 3 ¢
Zinc	₱ ℔ 3 ¢
No. 1 Pewter	₱ ℔ 17 ¢
No. 2 Pewter	₱ ℔ 9½¢
Tin Plate Scrap	₱ ton $6.50
Wrought Scrap Iron	₱ gross ton $10.00@
Heavy Cast Scrap	₱ gross ton $10.00@10.50
Stove Plate Scrap	₱ gross ton $7.00@ 7.50
Burnt Iron	₱ gross ton $5.00@ 5.50